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A Note from the Editor

Our March/April 2024 issue focuses on the use of AI tools in technical communication practices, processes, and products. While the latest iteration of AI tools can help us generate new ideas, useful content, and design concepts, technical communicators are uniquely positioned to help workplaces adapt to using generative AI in creating useful documentation and products. In particular, our unique skill sets, such as content strategy, user experience design, technical editing, information design, content reuse, and others, will be essential in developing human-centered products and information experiences using generative AI tools and applications.

To help bettter understand the implications and practicalities of integrating AI into technical communication work products and processes, this issue provides both industry and academic applied perspectives through a series of features. Saul Carliner and Samira Karim discuss how AI tools, such as ChatGPT, represent an evolution and increasing trend of AI tool use in the work of technical communicators. Daniel Hocutt and Ann Hill Duin explore how these trends blur the boundaries between technical communicator, problem solving and rhetorical intent in working with generative AI. Katherine Munroe provides a case study on working with ChatGPT in VBA Word macro development and shares some useful principles and lessons learned.

Ryan Boettger explains the importance of "prompt engineering" in creating effective transactions between technical communicator and the system (or tool) to facilitate more useful output. Susan Lang discusses several implications for AI use in academic settings, from program design to the curricular core competencies. Andrea Beaudin further explores some of these implications at a course syllabus and assignment prompt level, providing some interesting insights on where AI can be most useful in instructional design and training settings. And both of our featured columns, *The Academic Conversation,* by Thomas Barker, and *Meet the Change Agents*, by Scott Abel, focus on the evolution of AI. In our Spotlight feature, we learn more about STC member Xiaoli Li's global education journey in becoming a successful technical communicator.

This month's issue also features the final President's Letter from Tim Esposito, STC President, who has served us well over the changes of the past year. We look forward to the inaugural President's Letter from Liz Herman in our next issue as she assumes the role of STC President. ■

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Revolution or Evolution?

AI and the Work of Technical Communicators

By Saul Carliner | Fellow
and Samira Karim

Despite the relatively recent introduction of ChatGPT, AI technologies have played an increasing role in the work of technical communication over the past decade and more.

Years ago, a colleague with whom Saul began his career as a technical communicator observed that, by the 2020s, our jobs would involve helping to pull together pieces of information from various sources and tailor that information to the users' needs—all on the fly. When she first mentioned it to me in the late 1980s, online information was just starting to appear, and the majority of information remained in print.

Looking at technical communication today, she seems like a soothsayer. Many of the components needed to realize her vision are already in place and many others are coming into place. Technologies associated with artificial intelligence (AI) have played a major role in that. Although the release of a public version of ChatGPT at the end of 2022 fueled the current interest, AI technologies have had an ever-increasing impact on the work of technical communicators for decades and will continue to do so.

After providing a brief background definition of AI, we explore the two ways AI has affected the work of technical communicators: as a subject about which we write and as a work tool. When doing so, we also anticipate ways that AI might further address our work.

About AI

Although an in-depth explanation of AI falls well beyond the scope of this article, a short one might be beneficial, especially within the context of technical communication.

AI refers to the ability of machines to mimic the capabilities of humans. These include the ability to:

- Replicate human actions (like touch and speak)
- Sense (such as visual and audio recognition)
- Perform human tasks with information (such as translate it, correct its spelling, and write and review content)
- Make inferences about the information (such as characterizing audiences and predicting their informational needs).
- Solve problems and make decisions (such as assessing job applicants).

AI as the Subject of Our Work

Recently, one technical communicator proudly shared his latest job. He works for a company that produces software that can recognize license plates. Law enforcement agencies use the software to help track and catch suspects. Viewers of the television franchises *FBI* and *Law & Order* have seen such software in use. One of the aspects of his work that the technical communicator values is his ability to contribute to public safety.

> **Technical communicators [must] become familiar with new regulations on use of AI—some devised voluntarily with the collaboration of industry such as those in the US, some devised by lawmakers such as those coming into effect in the European Union—so communicators can advise users about legal and questionable uses of their products.**

This highlights one of the ways AI affects technical communicators: as a technology about which we communicate. At the least, aspects of AI have been increasingly integrated into the software that technical communicators document, such as (but not limited to) increasingly sensitive search capabilities, prediction capabilities (such as systems that can automatically re-order products, assess credit risk, and suggest adjustments of farming care to address different microclimates), and voice capabilities (like chatbots that take voice input).

At the most, AI capabilities are also integrated into physical products. Some are new categories of products like robots that can deliver orders to customers in restaurants and assist with resident care in long-term care facilities. Some are more traditional products like refrigerators that can help build shopping lists, and automobiles and cars, which can take voice commands, have increasingly sophisticated

entertainment consoles, and can automatically handle some driving tasks (with full self-driving on the way).

For these, technical communicators will need familiarity with the type of AI used, how customers should use these "intelligent" products, how service professionals should support and repair such products, and the ability to explain this to the affected audiences. That responsibility poses challenges because AI allows for mass-customizing of product use—that is, different applications with different audiences—and because many of the uses might not be anticipated by the product developers.

Some technical communicators might also have responsibility for documenting the algorithms that guide decisions and actions by the AI. Such documentation is a legal requirement in some jurisdictions. In others, it could be central to any potential lawsuit, a liability that most companies can anticipate. Documenting the algorithms becomes more of a challenge when systems can automatically adjust them based on "learning" that occurs through everyday operations.

> **Tools have affected the everyday work of technical communicators by slowly but surely incorporating technical editorial and illustration responsibilities into the scope of work over the past several decades.**

Communicating about these products could also affect the way technical communicators work. One way that could happen pertains to work processes, especially for those who work on physical products that incorporate AI. As Roy and White (2024) note, with the introduction of AI, the release schedules for many of these products will shift from the traditional schedule of six months to five years to continuous release of the software components, much like mobile apps and other software, where upgrades are released as soon as they become available. Right now, even when software is built into products, it generally is not updated. This move to continuous release, in turn, changes the process of developing products to an ongoing one, changing peak-and-valley experiences into something more akin to an assembly line. Technical communicators will need to adjust to a different work rhythm.

Communicating about these products coupled with the need to document algorithms also increases the need for technical communicators to develop familiarity with product limitations and liabilities, which they need to communicate to users. For example, one of the issues raised by the software that tracks license plates mentioned earlier is the ability for its use outside of law enforcement. That, in turn, requires that technical communicators become familiar with new regulations on the use of AI—some devised voluntarily with the collaboration of industry such as those in the U.S., some devised by lawmakers, such as those coming into effect in the European Union—so communicators can advise users about legal and questionable uses of their products, somewhat like medical writers need to prepare disclaimers about the uses of medication and medical devices.

AI as Part of Our Work Processes and Tools

At an advanced instructional design workshop in which instructional designers presented their recently produced tutorials for critique by their peers, one showed a tutorial with clear, but "tinny" narration; it sounded machine generated. The participant commented that they used a feature in Articulate Storyline that generated the narration from a script.

Later in the same workshop, another participant also showed a narrated tutorial. The second narration sounded significantly better than the first, and participants assumed the narrator was a professional. They assumed wrong; the second narration was generated by a newer version of Storyline. The technology had progressed significantly in a few short months.

This happened more than a decade ago at Lakewood Media's Training conference in San Diego. Since then, AI has increasingly affected the work of technical

communicators from analysis of a project through design, development, and delivery of the content.

Analysis. AI can summarize background readings, analyze data about audiences and make predictions about them. In addition, voice technologies can automatically transcribe interviews with subject matter experts. Some of these technologies have been in use for years (such as data analysis and transcription tools) while others are newer (like summarizing tools).

Design and Development. The impact of AI on these activities seems to have captured the most attention. Some AI-related technologies have been in use for years, including voice technologies that not only allow for system-generated narration in tutorials and show-me videos, but also can allow technical communicators to dictate their work, should they choose.

Other AI-related technologies have assisted technical communicators for years (often without our realizing that some sort of intelligence was involved), including tools that:

- Provide editorial assistance, starting with checking spelling (hence the name, "spellcheck"), later checking grammar and now, advising on style.
- Check the accessibility of documents, noting features out of compliance with guidelines so communicators can fix them.
- Produce both text and voice chatbots.
- Automatically translate text, significantly speeding up translation and facilitating simultaneous release of technical information in several languages, something not feasible in the past. Recently, translation capabilities have started to appear in word processors and similar applications.
- Produce and retouch images, from correcting photographs and illustrations to generating images and animations.
- Publish documents on several platforms—print-like (PDF), computer and laptop screens, and mobile screens—from a single file. Systems automatically adjust the presentation to the device. Similarly, tools like Design Ideas in Microsoft PowerPoint offer guidance in the appearance of slides and other documents.

These tools have affected the everyday work of technical communicators by slowly but surely incorporating technical editorial and illustration responsibilities into the scope of work over the past several decades, resulting in a small percentage of technical communicators describing themselves primarily as editors (3.5%), a larger percentage as writers (24.6%), and the largest percentage (36.9%) describing themselves as writers/editors (Carliner and Chen, 2018).

Generative AI could bring even greater changes as it could lead to the system generating parts or all, of certain types of information as it has been doing for at least a decade in other areas of professional communication.

Generative AI could bring even greater changes as it could lead to the system generating parts or all, of certain types of information as it has been doing for at least a decade in other areas of professional communication. For example, the co-pilots (AI tools) in Microsoft Word and PowerPoint suggest that they can assist or prepare first drafts, addressing blank screen syndrome.

More broadly, AI can handle routine writing tasks. Bloomberg has used system-generated headings since 2013 and system-generated earnings reports since 2018. *Sports Illustrated* and the news chain Gannett have used AI to generate sports summaries for several years (Tyrangiel, 2023). The types of information that seem ripe for this approach involve material that comes from existing sources (like product specifications or the Internet) and follows a particular format or template in presentation.

AI also affects delivery of information. The transition from printed to online information in the 1980s through 2000s also saw a transition from linear multi-page manuals to shorter topics that users can easily find and browse. Based on the tracking of user performance in applications that is facilitated by standards like the Experience API (which can assess skills), intelligent

tools will not only track what users can perform but also can suggest which assistance and training they might need and when they might need it.

AI can assist managers with hiring technical communicators. Automated Tracking Systems help employers identify qualified applicants from their existing pools of applications (not just for a current opening but also past ones). "Scrubbers" that go through social media can also find potentially qualified applicants to recruit. Some organizations conduct screening interviews with automated tools that pose questions to applicants and make recordings, which AI tools analyze to choose finalists.

> **AI will increasingly require that technical communicators build familiarity with the subject matter about which they write [because] human technical communicators and their employers will remain liable for the content**

In addition to affecting the work of technical communicators as described here, AI will increasingly require that technical communicators build familiarity with the subject matter about which they write. That seems paradoxical because AI can summarize source documents, speeding up advance research, and later, generate text. But human technical communicators and their employers will remain liable for the content and, as has been demonstrated in some recent situations—such as that of a time-pressed attorney who submitted court briefs generated by ChatGPT that referred to non-existent precedents—AI tends to make up facts (called *hallucination*) (Cerulla, 2023). And as that attorney was sanctioned by the court, so technical communicators could find themselves liable for inaccurate information in their documents.

What This Means to Technical Communicators

Although ChatGPT seems to have flashed onto the scene, if the past is any guide, the impact of AI is likely to be incremental: AI affecting a product or process about which we write; one or two job responsibilities adjusted at a time with the introduction of one or two new capabilities aided by AI in the tools we use to perform our jobs. The rest of this issue of *Intercom* explores some specific applications of AI technology to our work. ■

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Contracting Out and Partnering with AI

By Daniel L. Hocutt | Member
and Ann Hill Duin | Member

What's a technical communicator to do in response to generative AI? We recommend a couple of directions.

In what Ethan Mollick (2024) calls this *AI Moment*, we sample ways that technical communicators are contracting out and partnering with AI, blurring the lines between human and machine activity. In response to blurring these lines, we offer responses to the question "What is the technical communicator to do?"

What is being contracted out to AI?

Daniel works as a web content manager on the marketing and engagement team of the continuing education unit of a private liberal arts university. He approaches his position as a technical communicator. In this role, he manages the school's paid advertising efforts on search engines and social media platforms. He's a member of the LinkedIn Advisor network and regularly receives requests for expertise on user experience surveys.

A recent user experience survey asked questions about a new generative artificial intelligence (AI) tool that LinkedIn advertising rolled out. The tool, like those provided on other search and social advertising platforms, follows a similar chat pattern to AI tools like ChatGPT and Bard by soliciting a prompt and generating a response to the prompt. The prompt requested is a landing page URL for the product or service being advertised. The response, without requesting additional information, proposes a complete ad campaign for the product or service, including recommended conversion measurement (i.e., call to action, like a purchase, sign-up, or download), optimal budget, target audience, and a set of ad assets (headlines, descriptions, images, etc.). While the advertiser is responsible for vetting and approving each element of the advertising campaign on the ad platform, generative AI produces the bulk of the advertising content.

The intellectual, rhetorical labor of creating a digital advertising campaign traditionally falls to a marketing communication specialist who uses subject matter expert (SME)-provided tools like a detailed product description, results of target audience analysis, and a key competitors matrix to request or generate image sets, target audience interest profiles, ad copy, and advertising budget. Generative AI tools now in various stages of development and use on LinkedIn (https://www.linkedin.com/pulse/linkedin-introduces-ai-powered-ad-creation-tool-jonathan-pollinger-), Google (https://ads.google.com/intl/en_us/home/campaigns/ai-powered-ad-solutions), and Meta (https://www.facebook.com/business/news/generative-ai-features-for-ads-coming-to-all-advertisers) advertising platforms essentially contract out the often tedious and detail-oriented work of creating a digital advertising campaign within a recommended budget. Using existing machine learning (ML) tools, these advertising platforms are also able to optimize efforts in real time, adjusting keyword bids, spend levels, and audience profiles to maximize conversions within parameters recommended by generative AI and approved by the advertiser. While we're aware there's a circular logic at work—the platform optimizes using ML to its own AI-generated recommendations—the reality we're demonstrating is that communicators can now contract out advertising's generative composing processes to AI-augmented platforms.

What (who) are we partnering with in terms of AI?

AI is also birthing digital humans that may look and sound like us. The intellectual, rhetorical labor of designing the interface, again traditionally a part of the technical communicator's portfolio, may now also involve designing and/or partnering with digital employees and ambassadors, as chatbots evolve into digital humans. In the Gartner organization's discussion of 2021 hype cycle themes, Kasey Panetta wrote:

> Consider digital humans, which are digital-twin representations of people. This technology presents an opportunity for licensed personas that enable new revenue streams. They can appear as avatars, humanoid robots or conversational user interfaces, like chatbots or smart speakers. These interactive, AI-driven representations seem human and behave in "humanlike" ways supported by a range of technologies including conversational UI, CGI and 3D real-time autonomous animation. (Panetta 2021)

Tracing the turn to human-autonomy teaming, last year Ann co-authored the book *Augmentation Technologies and Artificial Intelligence in Technical Communication: Designing Ethical Futures* with Isabel Pedersen,

emphasizing that while "digital employees mimic human behaviors on the one hand, they also automate work tasks on the other with extensive AI capabilities that humans would not be able to perform… Through proxy agency, digital employees augment human cognitive capabilities" (Duin and Pedersen 2023, 194). These digital employees are designed to collaborate with us and are also sold by third-party companies for enterprise services. They emote verbal, facial, and gestural responses, with many being equipped to sense or detect emotion. As technical communicators, we need to understand their roles. "They *do the work* of humans; they collaborate with us; they learn from and with us" (195).

As an example of the use of ChatGPT in support of custom, interactive AI avatars, visit Soul Machines (https://www.soulmachines.com) and converse with any number of digital humans. "Its use cases span a broad spectrum that includes customer service, healthcare, financial services, brand ambassadors, entertainment, education, real estate, policing, and telecommunications/ call centers. In the education sector, soul machines are positioned to answer financial, course, career, and guidance questions; to serve as administrative or virtual teaching assistants; and are ready to speak in 12 languages" (Duin and Pedersen 2023, 207). According to the April 2023 issue of the *Harvard Business Review*, "Digital humans are already making real money for their employers. Soul Machines… has upwards of 50 digital humans deployed in organizations around the world" (Seymour et al. 2023,. 11).

What lines are being blurred?

One of the major lines being blurred by the integration of generative AI is that between marketing communication and technical communication. In a special issue of *Intercom* on the future of technical communication, Saunders (2018) noted this blurring of lines in terms of content, while Earley (2018) identified the blurring of lines in terms of audience analysis. In the generative AI tools in use by digital advertising platforms, the technical writer's work of content development and management, represented by the SEO-optimized structured content on a website landing page, becomes the prompt that generates the advertising campaign on the ad platform, complete with content and target audience analysis. From the careful work of technical communicators working with SMEs to develop and optimize web content, to the careful work of marketing communicators working with those same SMEs to develop target audience and competitive analyses, emerges the AI-generated advertising campaign, complete with recommended target, budget, imagery, ad copy, and placement.

In Daniel's case, these roles are combined into a single content management professional. His technical communication responsibilities include information architecture, content writing and management, search engine optimization (SEO), UX design within the constraints of institutionally designed and managed templates, and development of marketing landing pages for educational programs. In many cases he collaborates with other team members and third-party providers to develop assets for brand and visual identity, to write content for use across digital and analog outlets, and to deploy technical solutions like website analytics and tags. His marketing communication responsibilities include digital advertising, target audience analysis, market and competitor analysis, and ad content writing. The lines between these roles regularly blur to obscurity. For example, the structured content authoring required for successful SEO provides the content and keywords required for search advertising and supports higher placement of ads on search engine results pages (SERP). The rhetorical, user-focused approach to audience and purpose in composing web content provides the audience analysis needed to specify target audience demographics and psychographics in social media advertising.

By integrating generative AI into digital advertising platforms, the roles of marketing communication and technical communication blur even further. Marketing communicators need technical communication's approach to solving problems for users whose characteristics are being assumed by AI. Technical communicators need marketing communication's approach to key performance metrics, goals, and measurement to ensure that users' needs are being met when user data is the primary asset used to determine the effectiveness of AI-driven communication efforts.

Moreover, we contend that as technical communicators design and partner with digital humans via AI functional

technologies, digital employees will provide customer service across multiple sectors as they are tireless; moreover, they are proposed to "bring meaningful connection to the digital world, where empathy and compassion have disappeared from customer interactions" (see UNeeQ, https://www.digitalhumans.com). As compared to previous technologies, digital employees bring the greatest autonomy and agency to date to the agent. Using tools such as those shared at Amelia (https://amelia.ai), Synthesia (https://www.synthesia.io/tools/digital-human), and Unreal Engine (https://www.unrealengine.com/en-US/license), technical communicators can create and customize digital employees using natural language. As we interact with digital employees, this expands our understanding and design of the interface between human and machine.

So, what is the technical communicator to do?

Given the current and emerging AI landscape, we offer the following suggestions for technical communicators facing this question: In light of generative AI's integration into communication practices, what is the technical communicator to do?

Ensure human-in-the-loop (HITL) integration into emerging AI-centered workflows

At a recent higher education marketing conference (UPCEA MEMS 2023), Frederick T. Wehrle, Assistant Dean for Academic Innovation and Learning at UCLA Extension, recommended that higher education marketers spend 20% of their time learning about and experimenting with generative AI to identify its strengths and its pitfalls. We'd extend that recommendation to technical communicators as well. By understanding AI's limitations, we'll be in a position to advocate for and against specific uses of generative AI recommended or mandated by institutional policies. This is one way to practice HITL approaches to AI.

AI is built on the results of ML at massive scale. The large language models (LLM) used as training sets give AI its generative capabilities, but it's important to recognize that machine learning is built on data inputs. LLMs are simply (incredibly) large data sets, and the adages about "good data in, good data out" and "garbage in, garbage out" remain accurate. Humans are involved in curating data for ML analysis. We may be assisted by algorithms and bots, but humans retain agency in determining whether data is adequately curated (which can be read as "ethical, representative, equally accessible") for ML processing. One practical skill to meet this need to be involved in data curation is to learn basic data analytics practices to better understand the role data curation plays in ML and AI.

At the other end of generative AI integration are its results. Whether evaluating the recommendations from an advertising platform's AI-generated advertising campaign or analyzing suggestions offered by an AI assistant, technical communicators can apply their usability and UX testing skills to sample and test the user experience of content generated by AI (see Hocutt, Ranade, and Verhulsdonck 2022). Technical communicators advocate for users. AI can't serve as an advocate, at least not yet. Humans can question results, advocate for change, and retain the human user as the focal point of generative AI content. Applying usability testing methods to AI-generated content is another practical way to practice HITL. In short, technical communicators must be positioned to intervene throughout the design, adoption and adaptation of AI technologies. As Duin and Pedersen emphasize,

> Audience is now an *augmented* audience; non-human agents now function as independent team members; and content is quickly and vastly produced through machine learning. As a result, TPCs [technical and professional communicators] must function as explainers, intervening to correctly distinguish correct information from misinformation based on overall understanding of the social and cultural context surrounding deployment of augmentation technologies. TPCs must also build understanding of emotional intelligence as it relates to the data used to train AI models. As TPCs work with AI algorithms, we can intervene to be better curators and stewards of the data used to train AI models as well as how that data then impacts those interacting with digital employees. For such intervention, TPCs need to build understanding of ethical algorithmic impact assessment tools and processes to help guide the design of and collaboration with augmentation technologies. (Duin and Pedersen 2023, 214)

As Elizabeth Spiers writes in a recent *New York Times* (January 7, 2024) opinion piece, "for now, it [AI, ChatGPT] needs adult supervision."

Expand the blurring of lines among all who communicate and design using AI

We argue that blurring lines among communication professionals who engage with generative AI is a positive step in our response to AI. This article has identified marketing communication and technical communication as two fields where those lines are readily blurred. Other fields are emerging. Consider the way AI is being integrated into learning management systems (see https://www.proprofstraining.com/blog/ai-lms) as a natural language processing teaching and learning assistant. Educators will be questioning whether integrating generative AI into their course sites is a positive move. Marketing communicators and technical communicators can contribute methods for audience analysis and usability testing to help educators make informed decisions. Educators can provide methods for teaching students how to integrate AI into their workflows. The benefits of professionals in these fields collaborating and sharing their experiences centered around AI integration seem to far outweigh any doubts or concerns about disciplinary boundaries that get crossed or erased. AI blurs lines between professions and between humans and machines. Rather than resisting and retaining boundaries, we can center our efforts around AI to generate the best possible rendering and the best possible results for the prompts we provide and the people we assist.

Generative AI is here to stay. Technical communicators have an opportunity to partner with communicators and educators from across professional and disciplinary boundaries in order to serve as AI's adult supervision and evolving partner. ■

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Accelerating VBA Word Macro Development with AI

By Katherine Munro | Member

A ChatGPT-4 Assisted Journey.

In an era where time and efficiency are paramount, leveraging technology can make a significant difference in productivity. This case study explores a unique collaboration I had with ChatGPT-4, an artificial intelligence (AI) model, in developing Visual Basic for Applications (VBA) macros for Microsoft® Word documents. The success of this project offers valuable insights into how AI can be utilized for real-time coding assistance.

The Challenge

MadCap Flare is an excellent tool for creating technical documentation, outputting content to a range of formats including HTML5, PDF, and Word. However, Flare's Word output has some shortcomings, including inability to include background images. Such images in headers and footers are essential for corporate branding of documents. Other issues include some inconsistent style application, layout of content in table cells, and alignment in a document's table of contents.

Although fixing these issues manually post-build from MadCap Flare would of course be possible, the process would be so laborious and tedious at scale, we had previously decided that our team would not provide content in Word format. This decision disappointed some consultants in our company who had valid use cases for customizing official product documentation for training purposes or specific customer implementations.

A macro is a series of commands that can be grouped together as a single command to accomplish a task automatically. Automating repetitive tasks leads to not only efficient use of time and resources, but also consistency of application and minimization of errors. However, writing Word macros requires familiarity with VBA scripting and the Microsoft Word object model. I had some experience writing simple Word macros but could not have written macros for these Word issues without significant research or help from an experienced VBA developer.

Solution Development with ChatGPT-4

This case study focuses on the development of the first macro for adding corporate branding images to headers and footers of the document, with the requirement that images and positioning would be different for the title page, back cover, and content pages.

I started with context and goal setting with a simplified scope.

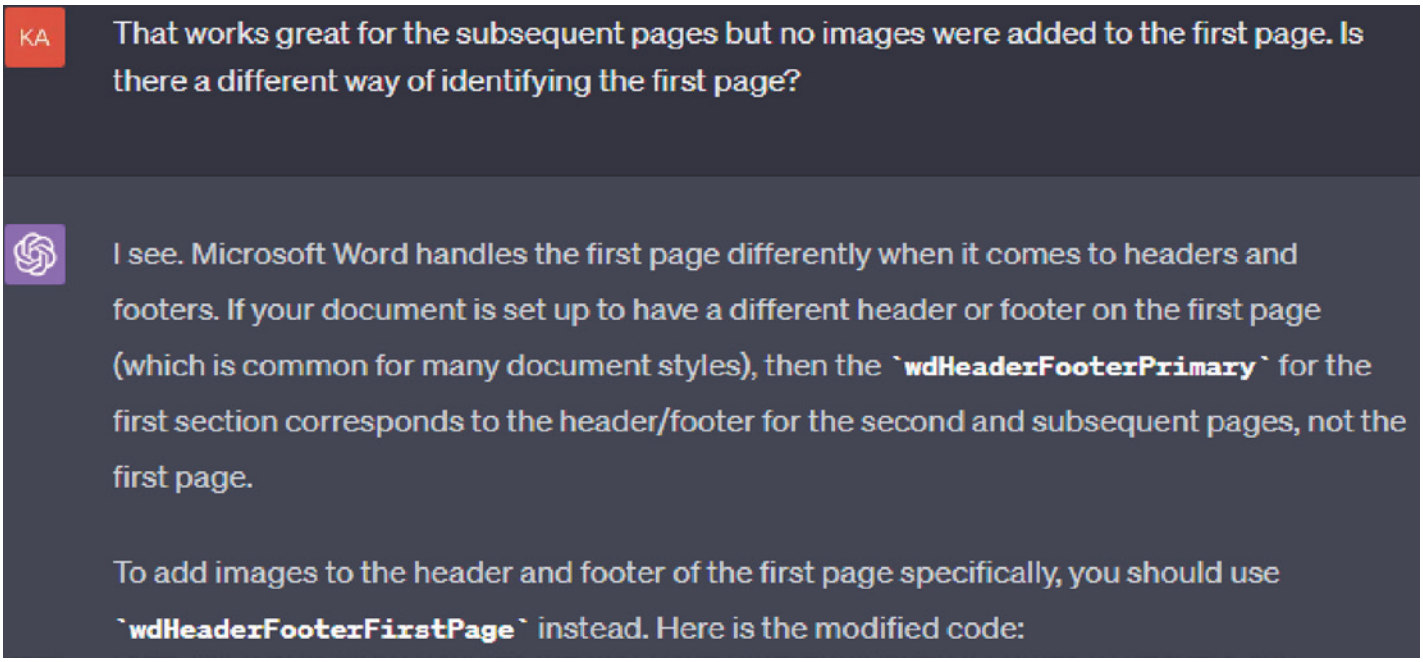
KA I have a Word document that I built using MadCap Flare. What macro could I use to add a logo and a footer image to the first page, and a different header image on all the other pages?

ChatGPT responded with a simple example of VBA code, followed by notes about editing the paths to the images and how to use the InchesToPoints function.

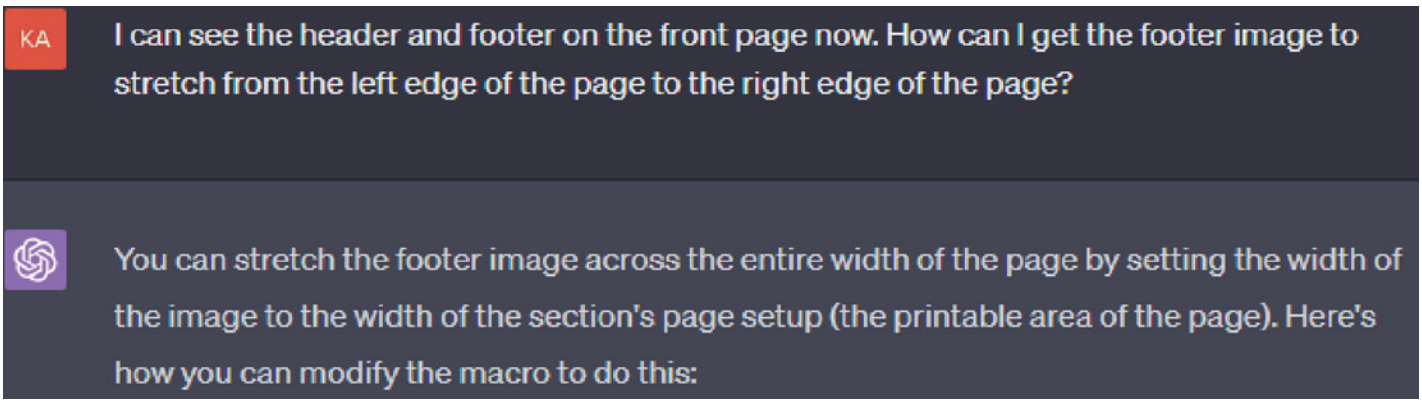
```
Sub AddImagesToDocument()

    ' Declare variables
    Dim oDoc As Document
    Dim oSection As Section
    Dim oHeader As HeaderFooter
    Dim oFooter As HeaderFooter
    Dim oShape As Shape

    ' Set document object
    Set oDoc = ActiveDocument

    ' For each section in the document
    For Each oSection In oDoc.Sections

        ' If it's the first page
        If oSection.Index = 1 Then

            ' Add image to header
            Set oHeader = oSection.
Headers(wdHeaderFooterPrimary)
            Set oShape = oHeader.Shapes.
AddPicture(FileName:="C:\path\to\logo.jpg",
LinkToFile:=False, SaveWithDocument:=True)

            ' Position image as desired
            oShape.Left = InchesToPoints(1)
            oShape.Top = InchesToPoints(1)
```

```
        ' Add image to footer
        Set oFooter = oSection.
Footers(wdHeaderFooterPrimary)
        Set oShape = oFooter.Shapes.
AddPicture(FileName:="C:\path\to\footer.jpg",
LinkToFile:=False, SaveWithDocument:=True)

        ' Position image as desired
        oShape.Left = InchesToPoints(1)
        oShape.Top = InchesToPoints(1)

    Else
        ' Add a different header image to other pages
        Set oHeader = oSection.
Headers(wdHeaderFooterPrimary)
        Set oShape = oHeader.Shapes.
AddPicture(FileName:="C:\path\to\other.jpg",
LinkToFile:=False, SaveWithDocument:=True)

        ' Position image as desired
        oShape.Left = InchesToPoints(1)
        oShape.Top = InchesToPoints(1)

    End If
  Next oSection

End Sub
```

I tested this macro and gave feedback, leading to the first refinement.


KA
That works great for the subsequent pages but no images were added to the first page. Is there a different way of identifying the first page?
I see. Microsoft Word handles the first page differently when it comes to headers and footers. If your document is set up to have a different header or footer on the first page (which is common for many document styles), then the `wdHeaderFooterPrimary` for the first section corresponds to the header/footer for the second and subsequent pages, not the first page.
To add images to the header and footer of the first page specifically, you should use `wdHeaderFooterFirstPage` instead. Here is the modified code:

That suggestion worked to make the images visible on the first page. However, the footer image was positioned relative to the left and right page margins instead of the left and right edges of the page.


KA
I can see the header and footer on the front page now. How can I get the footer image to stretch from the left edge of the page to the right edge of the page?
You can stretch the footer image across the entire width of the page by setting the width of the image to the width of the section's page setup (the printable area of the page). Here's how you can modify the macro to do this:

After a couple of failed attempts to make progress, I provided this feedback from testing.

KA

I still cannot see the footer image. For the version of the macro before I asked for the image to be stretched from page edge to page edge, I had to set the oShape.Top - InchesToPoints(-2) to be able to see the image.

I see. It looks like the origin for positioning the footer image is different than what I initially thought. If moving the image up by 2 inches showed it, it means the positioning is likely relative to the beginning of the footer, not the entire page. My apologies for the confusion.

So, let's set the footer image's top to be 0, which means it will be at the top of the footer area. Here's the adjusted code:

With each attempt, ChatGPT not only provided a full version of the VBA code, but also included an explanation of how the code should work. Nevertheless, this called for persistence, as I still did not have a solution.

This version of the code places the footer image at the top left of the footer area (`oShape.Left = 0` and `oShape.Top = 0`). The width of the image is still set to stretch across the page. If the image height is larger than the footer area, it will overflow into the body of the document, but as it's in the footer, it should appear behind the body text.

KA

I can see the top of the image now, but it still needs to be higher. And the image is still not being stretched from page edge to page edge

I apologize for the confusion. It seems the relative positions in headers and footers can sometimes act in unpredictable ways. Instead of adjusting the top position of the shape, let's try to change the relative vertical position to make sure it fits well within the footer.

Also, to make the image stretch from edge to edge, we will make it as wide as the full page width, not subtracting the margins. Here's the adjusted code:

Several attempts were required to solve the footer position, and ChatGPT made some code errors, which became evident when compiling the script in Word. ChatGPT was quick to address this feedback too.

KA "Object doesn't support this property or method" displayed

Apologies for the confusion. I mistakenly used the `.Width` property on a `Cell` object, but in VBA for Word, the `Cell` object doesn't have this property.

Here is the corrected macro which uses the `.PreferredWidth` property for the `Cell` object and sets the `.PreferredWidthType` to `wdPreferredWidthPercent` and value to `100` to stretch the table cell to the full width of the page. We'll also directly add the picture to the footer's range and then move it into the table to avoid issues with adding images to a table cell:

At this point, I returned to the best solution so far and experimented using different values.

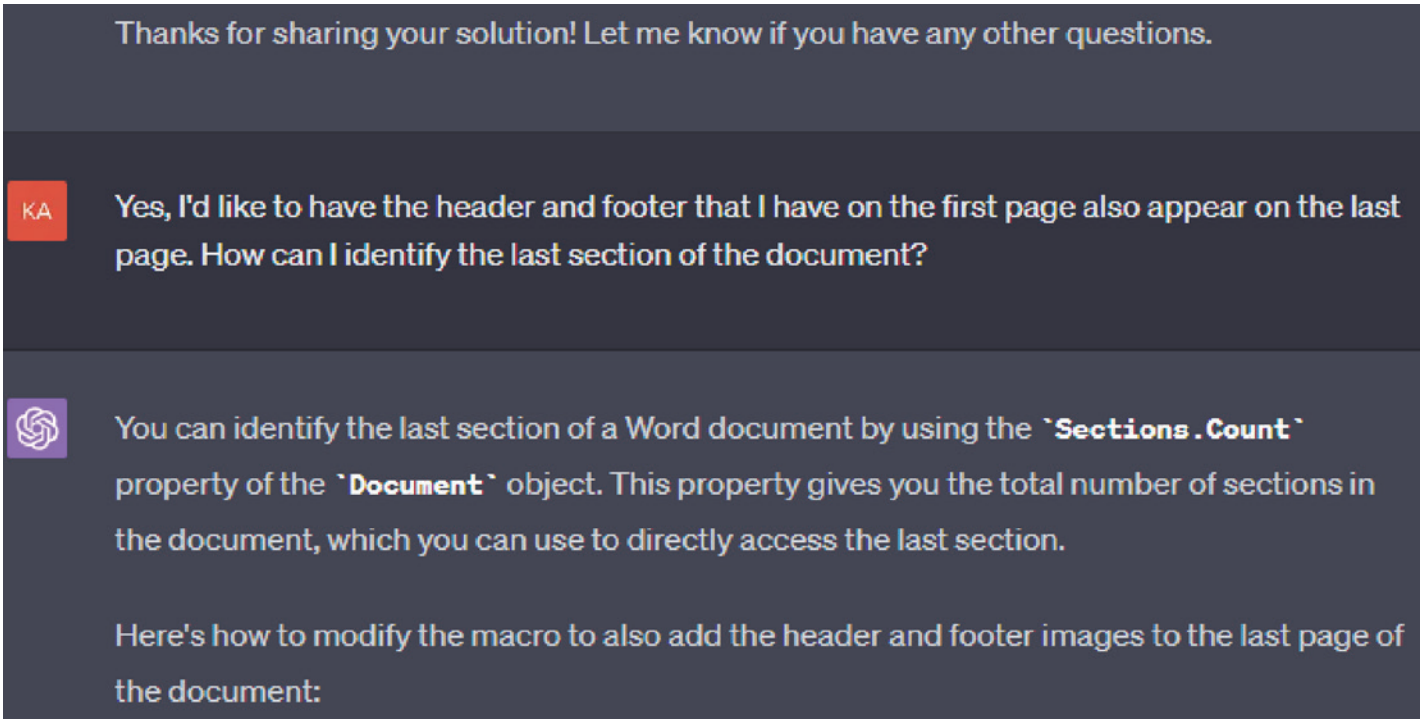
KA Ok, I've done some experimenting, and this is what worked: I took the second version of the macro you suggested, but I used this positioning for the footer image on the first page:

```
' Position image as desired
        oShape.Left = InchesToPoints(-1.05)
        oShape.Top = InchesToPoints(-0.7)

        ' Stretch the image across the width of the page
        oShape.Width = oSection.PageSetup.PageWidth
```

Great job experimenting with the code! I'm glad you found the right coordinates that work for your particular document. The correct image position can vary based on a lot of factors such as the page size, margins, or even the specific printer settings.

In case anyone else is interested, here's the final version of the macro based on your findings:

However, remember that I started with a simplified scope. Now was the time to introduce more complexity.


Thanks for sharing your solution! Let me know if you have any other questions.
KA
Yes, I'd like to have the header and footer that I have on the first page also appear on the last page. How can I identify the last section of the document?
You can identify the last section of a Word document by using the `Sections.Count` property of the `Document` object. This property gives you the total number of sections in the document, which you can use to directly access the last section.
Here's how to modify the macro to also add the header and footer images to the last page of the document:

Further iterations ensued, ultimately leading to this full solution.

```
Sub AddImagesToDocument()

    ' Declare variables
    Dim oDoc As Document
    Dim oSection As Section
    Dim oHeader As HeaderFooter
    Dim oFooter As HeaderFooter
    Dim oShape As Shape
    Dim originalWidth As Single
    Dim originalHeight As Single
    Dim aspectRatio As Single

    ' Set document object
    Set oDoc = ActiveDocument

    ' For each section in the document
    For Each oSection In oDoc.Sections

        ' If it's the first page
        If oSection.Index = 1 Then

            ' Add image to header
            Set oHeader = oSection.
Headers(wdHeaderFooterFirstPage)
            Set oShape = oHeader.Shapes.
AddPicture(FileName:="C:\path\to\logo.jpg",
LinkToFile:=False, SaveWithDocument:=True)

            ' Position image as desired
            oShape.Left = InchesToPoints(-0.5)
            oShape.Top = InchesToPoints(-0.1)

            ' Add image to footer
            Set oFooter = oSection.
Footers(wdHeaderFooterFirstPage)
            Set oShape = oFooter.Shapes.
AddPicture(FileName:="C:\path\to\footer.jpg",
LinkToFile:=False, SaveWithDocument:=True)

            ' Get the original size of the image and calculate the
aspect ratio
            originalWidth = oShape.Width
            originalHeight = oShape.Height
            aspectRatio = originalHeight / originalWidth

            ' Position image as desired
            oShape.Left = InchesToPoints(-1.05)
            oShape.Top = InchesToPoints(-1.2)

            ' Stretch the image across the width of the page and
adjust the height according to the aspect ratio
            oShape.Width = oSection.PageSetup.PageWidth
            oShape.Height = oShape.Width * aspectRatio

        ' If it's the last page
        ElseIf oSection.Index = oDoc.Sections.Count Then

            ' Add image to header
            Set oHeader = oSection.
Headers(wdHeaderFooterPrimary)
```

```
        Set oShape = oHeader.Shapes.
AddPicture(FileName:="C:\path\to\logo.jpg",
LinkToFile:=False, SaveWithDocument:=True)

        ' Position image as desired
        oShape.Left = InchesToPoints(-0.5)
        oShape.Top = InchesToPoints(0.2)

        ' Add image to footer
        Set oFooter = oSection.
Footers(wdHeaderFooterPrimary)
        Set oShape = oFooter.Shapes.
AddPicture(FileName:="C:\path\to\footer.jpg",
LinkToFile:=False, SaveWithDocument:=True)

        ' Get the original size of the image and calculate the
aspect ratio
        originalWidth = oShape.Width
        originalHeight = oShape.Height
        aspectRatio = originalHeight / originalWidth

        ' Position image as desired
        oShape.Left = InchesToPoints(-1.05)
        oShape.Top = InchesToPoints(-1.2)

        ' Stretch the image across the width of the page and
adjust the height according to the aspect ratio
        oShape.Width = oSection.PageSetup.PageWidth
        oShape.Height = oShape.Width * aspectRatio

    Else

        ' Add a different header image to other pages
        Set oHeader = oSection.
Headers(wdHeaderFooterPrimary)
        Set oShape = oHeader.Shapes.
AddPicture(FileName:="C:\path\to\other.jpg",
LinkToFile:=False, SaveWithDocument:=True)

        ' Position image as desired
        oShape.Left = InchesToPoints(4.15)
        oShape.Top = InchesToPoints(0.15)

    End If
  Next oSection

End Sub
```

Based on the success of development of this first macro, I took a similar approach for macros to solve the other formatting and layout issues.

Reflection

The following principles were key to the success of this collaboration.

Clear Communication: Both the problem and feedback were clearly communicated, enabling precise adjustments. Open communication and collaboration with ChatGPT were essential in understanding the problem and iterating toward the solution.

Collaborative Iteration: The iterative process allowed for testing and refinement, leading to tailored solutions. We were both able to adapt and explore different methods to achieve the desired outcome. Shared success was achieved, with contributions from both ChatGPT and me.

Attention to Detail: The origin for positioning the footer image was discovered to be different from the initial assumption, leading to adjustments in the code. A deep understanding of Word's behavior, including positioning and aspect ratios, and attention to specific details ensured a macro that met the exact requirements.

Experimentation: The iterative process involved experimentation with different positioning techniques to achieve the desired result. My willingness to experiment and provide feedback was instrumental in navigating challenges and achieving precise results.

Persistence: The iterative process continued until the exact requirements were met, reflecting a commitment to precision and quality. Persistence in troubleshooting and adaptation to changing requirements allowed for the successful completion of the macros.

Results

The final suite of macros addressed the unique requirements of transforming the Word output from MadCap Flare into a deliverable suitable for immediate use or customization. Collaborating with ChatGPT led to significant time and cost savings, turning a potentially multi-day development effort into just a few hours of interactive work.

The innovation and efficiency demonstrated in this project were met with acclaim by team members and managers, showcasing the power of AI-driven collaboration. The results of this project will enable other team members to accelerate the transformation of existing product documentation in MadCap Flare, given that the team can now support quality Word outputs.

> **Collaborating with ChatGPT led to significant time and cost savings, turning a potentially multi-day development effort into just a few hours of interactive work.**

Conclusion

Communication, iteration, attention to detail, experimentation, and persistence were key elements of this success. By embracing these principles, I was able to compress potentially days of development effort into just a few hours, leveraging ChatGPT as a tool to achieve impressive results.

This case study not only highlights the successful development of specific macros but also illustrates a broader application of AI in accelerating and enhancing the software development process. ChatGPT can act as a virtual development partner, capable of understanding complex requirements, providing solutions, and adapting to feedback. The case study stands as a testament to the power of collaboration, adaptability, and innovation in working with AI tools in the digital age. ■

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From Technical Communicator to AI Whisperer: The Rise of Prompt Engineering

By Ryan K. Boettger | Member

Technical communicators are ideally positioned to guide AI systems in generating quality content through an emerging field called prompt engineering.

In *Intercom's* December 2018 issue on the state of the tech comm industry, over 70% of survey respondents reported that technology had rarely or never assumed the tasks they performed in their jobs. (Carliner and Chen 2018). The same percentage doubted their jobs could be automated by 2030.

A lot has changed in six years, with a global pandemic notably accelerating the development and adoption of artificial intelligence (AI) across various sectors. Experience working with AI has increasingly become a requirement in job postings and is likely to become a standard expectation soon. Researchers at LinkedIn observed job postings mentioning AI have experienced a 17% higher growth in applications over the past two years compared to those without those mentions.

While technical communicators might wonder whether robots will take their jobs, AI has instead opened opportunities to reshape the profession and deepen organizational value. Meanwhile, college students should gain this knowledge before entering the workforce. The demand for content, for example, will only increase, creating a demand for employees who are skilled in the art of clarity, concision, and storytelling.

Sound familiar? These skills remain the core of effective technical communication and will become critical in an age of content bloat and saturation. AI is not replacing technical communicators, but they should consider how they can apply their current skill set differently and whether upskilling would benefit their career. In particular, prompt engineering has emerged as an essential skill and viable career for technical communicators.

Prompt Engineering Defined

Prompt engineering includes the crafting of clear, concise, and effective prompts for AI systems, guiding the AI to create accurate and contextually appropriate responses. Prompt engineers understand how to finesse the AI by using terminology or prompt sequences that generate the best results, facilitating seamless collaboration between the technology and its users. Technical communicators are ideally positioned to excel as prompt engineers, but they have to understand how to translate their skills into the required knowledge areas.

Key Knowledge Areas for Prompt Engineers

Prompting requires more than just being a good communicator. Prompt engineers need to understand language structures, the typical tropes of synthetic text, prompting methodologies, limitations of AI, and ethical considerations.

Understand Language Structures and Rhetorical Strategies

Mastering prompt engineering isn't just about knowing the technology; it's deeply rooted in understanding language structures and the art of persuasion. AI makes information more accessible, but it doesn't inherently grasp the nuances of human language. That's where your expertise comes in. A thorough understanding of language structures, from sentence diagramming to syntax, is key to guiding AI toward generating more effective and user-friendly responses.

Beyond grammar, knowing how to use *rhetorical strategies*—concepts like metaphor, repetition, and positive emphasis—makes concepts more convincing and memorable. This skill is vital in prompt engineering, where the goal is to produce AI-generated content that resonates with and motivates the audience. Take Kitty Locker's research on goodwill in communication. Applying these principles can transform the tone of AI-generated customer service responses, making them more engaging and effective. Understanding language and persuasion – and then knowing how to communicate that to the AI – produces outputs that better meet your communication goals.

Learn Prompting Methodologies

Effective prompting requires a deep understanding of specific methodologies to interact successfully with AI systems. Users who express frustration with AI output can produce better results if they understand basic prompting methodologies. Understanding of audience and purpose, like all effective technical writing, determines how to prompt the AI. There are many

prompting methodologies, but the one I offer is Do-What-How—giving a command to define the task and detailing the desired output, format, or style.

DO: Issue a direct command to the AI. Clarify the action you want the AI to take.

WHAT: Specify the task or output. Detail what you expect as the result of the AI's action.

HOW: Specify the manner or style in which the task should be completed. This includes formatting guidelines, tone, or any stylistic elements you want the AI to incorporate.

As an illustration, consider, "Instruct a general user on how to create a style in MS Word in five steps or fewer, using clear and concise language suited for beginners." If you want a more specialized prompt try, "Instruct a general user how to create a style in MS Word in five steps or fewer in the voice of Deadpool." These adjustments make massive differences in the quality and tone of the synthetic text.

In addition, interviewing the AI is another way to learn more about how it was trained. Earlier, I referred to Locker's goodwill principles as *rhetorical strategies*. I used this term because I interviewed the AI, first asking if it knew about Locker's research, and then the term is used to classify her research. Interviewing the AI helps in crafting prompts that align with the model's training, rather than imposing external terminology.

Recognize the Tropes of Synthetic Text

If you generate enough text with AI, you'll notice tropes that don't reflect the best writing practices. Synthetic text often outputs repetitive words, overwritten or flowery prose, or cringey summaries that I call *Bow-itis* because the AI always wants to wrap everything up neatly.

Prompt engineers elicit higher-quality output with the use of mega prompts—extensive, multi-layered instructions—in addition to adjusting the parameters of the AI or creating fine tunes to better reflect an individual writer or organization's style and voice. These advanced techniques should be attempted after prompting methodologies.

Learn Different AI Models and Understand Their Parameters

Each AI model has its own purposes, quirks, and prompting guidelines. Besides learning different AI models, prompt engineers must also be able to adjust a specific AI's parameters. If you use the web-based version of Claude or ChatGPT, you won't be able to do this; instead, you need to use the developer interface for their models, some of which are easier to access than others.

If you have a ChatGPT account, you can use those same credentials to log in to Open AI's Playground (https://platform.openai.com/playground). Here, you can choose a model and adjust parameters like temperature, Top P, frequency penalty, and presence penalty.

- Temperature controls the randomness or creativity of the response. A lower temperature results in more predictable and conservative outputs, while a higher temperature generates more varied and creative responses.
- Top P (or Top Probability) controls the diversity of the generated content. It's a way of telling the model to consider only the top percentage (probability-wise) of potential next words. A lower Top P will make the model's choices narrower or more focused, while a higher Top P allows for a wider array of possibilities.
- Frequency penalty discourages the model from repeating the same words or phrases. A higher frequency penalty makes the text more diverse and avoid redundancy.
- Presence penalty discourages the model from repeating the same topics or themes. Increasing the presence penalty can help in generating a narrative that continuously moves forward, introducing new elements and ideas, rather than circling around the same concepts.

Prompt engineers understand how these parameters influence output when adjusted individually and in tandem. For example, a lowered temperature of 0.7 and Top P of 0.8 will generate more predictable outputs with more expected word choices, ideal for most business and technical communication. Creative writers, in contrast, might increase these parameters to generate less predictable and more varied vocabulary.

If you're only familiar with these web-based interfaces of most AI models, you probably are unfamiliar with these parameters and are beholden to whatever parameters the developers have set the AI to. This can often yield frustrating output that doesn't reflect intention.

Acknowledge Ethical Considerations

No discussion of AI should take place without acknowledging ethical considerations. Working with AI and synthetic texts means prompt engineering must ensure the content is original, accurate, and human-edited.

Prompt engineers should also be mindful of the language they use in prompts. Many organizations deal with proprietary or client information that should not be fed into web-based AIs. Likewise, the AI should not be prompted to generate text in a specific author's voice; rather, the prompt should describe the features that characterize that voice. This is another reason knowledge of language structures and rhetorical strategies is vital to this emerging profession.

Transparency about AI's role in content creation is also essential to maintain trust and integrity, making it clear to audiences when content is machine-generated. If your company doesn't currently have a policy on AI-assisted writing for both in-house and client work, now is the time to consider creating one.

Finally, AI can unknowingly perpetuate biases from its training data. Much of technical writing is centered on assisting specialized audiences. It's incumbent to recognize and counteract these biases, ensuring inclusive and stereotype-free content. Ultimately, prompt engineers bear the responsibility for the AI's output, upholding ethical standards and guiding AI toward producing respectful and accountable communication.

The AI-Assisted Technical Communicator

AI is here to stay. New models seemingly drop every day, and AI is enhancing the software and websites technical communicators use daily for their work. It's easy to get overwhelmed with the advances and knowing where to begin learning more, but I hope this article offers actionable steps in becoming an effective prompt engineer:

- Understand language structures: Study language patterns, terminology, and rhetorical strategies used in your field to tune AI outputs.
- Adopt prompting best practices: Familiarize yourself with techniques like Do-What-How prompts. Know when to apply different approaches.
- Recognize common AI tropes: Repetition, inappropriate tone/voice, inaccurate facts. Adjust prompts and parameters.
- Explore AI models' unique features: Each model has strengths, weaknesses, and favored prompting structures. Adjust temperature and presence penalty for desired output.
- Uphold ethical AI use: Ensure transparency, accuracy, and oversight in AI content creation. Mitigate biases. Safeguard sensitive data.

Prompt engineering blends language expertise with AI fluency. By skillfully guiding AI systems, technical communicators can unlock efficiency and innovation in the work they do. ■

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Implications of AI for Program Design in Technical Communication

By Susan M. Lang | Sustaining Member

How AI training can be integrated into either academic programs or professional development for technical communicators.

Picture this—a discussion among employees whose jobs appear threatened by a new technology, panicked that they will become obsolete. Sound familiar? While most readers probably assume I'm referring to the current fear that many technical communication jobs will be taken over by ChatGPT or other generative AI applications, this scenario is only the latest in a sequence that has been imagined repeatedly over the past century in contexts both fictional and real. Since the onset of the COVID-19 pandemic in 2020, mainstream media and trade publications have considered how automation and cutting-edge technologies have either displaced or reinstated jobs in the name of safer and more efficient operations. Daily we hear about new applications of AI in medicine, engineering, or manufacturing and potential misapplications of AI in other areas, such as higher education.

AI is transforming the way some of us work. A 2023 Asana report on "The State of AI at Work," a survey of over 4,500 employees in the U.S. and U.K., found that while 36% of these employees use AI weekly, nearly 90% want to see transparency and accuracy underlying the AI tools they use. And less than half of those surveyed understand the concept of *human-centered AI*, which integrates artificial intelligence with human values and needs, enriches work rather than dictate it.

The deluge of information regarding all aspects of AI seems overwhelming, especially when a good amount of that information implies that technical communication jobs will be among those taken over by AI systems. But at its core, AI is a tool, whether we are talking about traditional AI (think Siri, Amazon recommendations, or Google) or generative AI such as ChatGPT or Sudowrite. And just as technical communicators have learned to use stand-alone or cloud authoring tools, image editing tools, and publishing tools, they will need to understand and be able to apply the capabilities of AI to facets of their work.

Given the complicated nature of higher education's evolving response to generative AI, those teaching in academic programs will need to consider their institution's academic integrity policies toward the use of AI in courses. Most of these policies provide only general guidance that such use be "intentional," while some prohibit requiring students to use AI in a course. Such contradictions make meaningful integration of instruction regarding generative AI more challenging, but I discuss some possibilities below for an undergraduate curriculum, which may also be appropriate for in-service training/refreshers for professionals.

AI, Student Background, and Core Competencies

Ideally, generative AI should be introduced as a topic of examination in a program's introductory or service course along with other tools commonly used for writing. Rather than viewed as a radical departure, we should consider it as the next step in generations of tool development and in terms of the knowledge that professional technical communicators need to use it effectively. Students are likely already using basic AI tools such as Microsoft Word's Editor or Google's Smart Compose and Smart Reply as they create text, and editing tools such as Grammarly, Scribbr, or QuillBot. Basic AI terms, concepts, and principles should also be introduced, such as those from the Organization for Economic Cooperation and Development (OECD) (https://oecd.ai/en/ai-principles).

As tools and terms change, often the essential skill sets evolve as well. To illustrate, when website design and development became part of technical communication, professionals integrated visual design theories and markup languages, such as HTML, into their toolbox. Combined with strong writing and editing skills, these professionals differentiated themselves from their peers who may have been good writers but relied mostly on tools such as Microsoft FrontPage and Macromedia Dreamweaver to design and code websites. Likewise, when websites became more interactive, user experience became a more significant part of project planning, visual design, and content development. This did not mean, however, that other key skill sets, such as writing and editing, were jettisoned, but rather changed the methods in which they were employed.

A confluence of factors adds additional layers of complexity to programmatic decisions about generative AI. Our current generation of college-bound students

often enter their degree-granting institution with less writing instruction and experience than prior generations. Because of dual-enrollment programs, as well as a desire to accrue affordable college credit, many students may take their first technical communication course without having enrolled in prior writing courses at the institution where they plan to earn their college degree. A dilemma for academic programs, then, is deciding how they will structure competencies in writing and editing that are expected of entry-level technical communicators. Experts still debate what best practices entail in terms of assessing proficiency of so-termed *lower concerns* or *sentence-level issues* are given the assistance offered by word processing programs. Generative AI, with its apparent capabilities that support the creation, drafting, and editing of text, further complicates instruction and assessment. We must decide what level of proficiency with the grammar, syntax, and mechanics of language is required for students *before* they can make the best use of writing tools.

Even more critical, though, will be ensuring that students understand the limits of generative AI applications in drafting and editing critical documents. While AI seems to function well as a drafting partner for some materials, human-centered AI practices must also be followed. Especially when dealing with novel technologies in such fields as aviation or electronic vehicles, for example, the human-AI interaction as those documents evolve will be vital. No one wants to be the writer or editor whose overreliance on AI led to a catastrophe on the level of the Challenger explosion or, more recently, the Boeing 737 MAX tragedies.

Other Considerations

Given that each day brings new information and insights about AI systems, academic program directors should be considering how generative AI may or may not alter the trajectory of their undergraduate and graduate programs over the next several years. One obvious challenge will be ensuring that all teaching faculty in technical communication programs have a working understanding of generative AI from basic terminology to practical application. For academic programs, this means that those teaching any course will need to decide how AI will be incorporated into assignments in their courses, whether students will use AI as they complete assignments or have students compare their responses to particular assignments with responses generated by AI systems.

Program directors and faculty at some point will also need to consider whether or not AI has a place in the evaluation of student assignments in technical communication programs. While incorporating AI technology into assignment production appears inevitable, using that technology to assist in commenting on student work carries equally pressing educational integrity questions, especially if evaluations are used to admit or deny admission to a program at the conclusion of an introductory course.

While the integration of generative AI into the technical communication curriculum will change the trajectory of programs, their focus may be less (or different) on writing and editing and more on other competencies and skills within the discipline. If so, those alterations and the rationale behind them will need to be articulated throughout the field so that both prospective students and employers understand what skill sets will be emphasized within programs.

Whether training as part of academic programs or continuing education, the field must look forward. As our tools evolve, we must also evolve to understand and advocate for their optimal use in our work. Extending these considerations beyond the academy, professionals who manage technical communication teams will also need to consider which core competencies will be emphasized in writing and editing usable content. ■

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AI as eMuse for Instructional Design

By Andrea L. Beaudin | Member

Generative AI, such as GPT, can improve and enhance the instructional design process, transforming challenges into innovative learning opportunities.

As an instructor and communicator, my first tinkering with the AI chatbot put me in a bit of a panic mode. I entered an assignment prompt, and in seconds, usable text appeared on the screen, text that was not too different from the 75+ assignments that I had recently graded.

I live in a household of gamers. I think it was *Dungeons & Dragons* (*D&D*) that made me think differently about ChatGPT. If you're not familiar with *D&D*, players create characters that, in part, fit along two axes: law/chaos and good/evil. With neutral acting as a midpoint along both axes, character alignments can fall somewhere between *lawful good* and *chaotic evil.* Experiencing how easily students could bypass learning and critical thinking by plugging in a prompt, I initially characterized ChatGPT as *chaotic evil*.

One night, however, the AI evangelist of the household demonstrated how to create storylines for *D&D* using ChatGPT. I began to perceive the creative opportunities generative AI could enable. Though the technology could be employed to sidestep learning, it could also be a *muse* for brainstorming and concept development. In the past year, I've discovered multiple uses for generative AI that include developing tool simulation-based learning, audience analysis, and learner assessment. While most of the applications I list focus on instructional design, some of these strategies can streamline or enhance workflows for user experience (UX) researchers and other technical communicators.

Open AI's ChatGPT vs. the API

My use of generative AI chatbots has been primarily with OpenAI's ChatGPT and more recently, its API developer platform (OpenAI). The platform offers greater opportunities for control and customization than the free ChatGPT, but it is not as user-friendly as the Plus or Enterprise versions . It is a paid model, but it has two major appeals: control over how OpenAI uses one's data and the Assistant feature. With the API, data such as prompts and messages are retained for a set period (30-60 days) with the opportunity for zero data retention. Uploaded files are kept until the user deletes them (OpenAI). Unlike ChatGPT input, one's API data is not used to train the model, so it is more suitable for sensitive information (though as always, user beware/be aware).

The Assistant is my favorite feature of the API. Users can create an Assistant with instructions (or guiding principles) that dictate the chatbot's style and tone, provide output guidelines, or even frame each response from a defined standpoint. Additionally, the Assistant's *Files* option enables creating a repository of files for the Assistant to reference when responding to prompts (see Figure 1).

Exploring Generative AI's Potential for Instructional Design

Instructional designers are often challenged by constrained resources, specifically time, labor, and money. Utilizing generative AI has proven to be valuable in mitigating these impediments. The technology can assist with the creation of diverse elements including scenarios, personas, and assessment tools.

Simulations and Branching Scenarios

In the fall of 2022, I spent well over a week creating six fictional case studies for a business communication course designed as a workplace simulation. Acting as consultants, students used the case studies for their problem-solving team projects. Their "clients" ranged from a credit union to a coffee shop. Students were engaged and did well, but I felt that the context I provided was a bit too neatly packaged—in practice, problem-solving requires analyzing multiple factors. With my limited time, I simply couldn't develop meaningful details such as organizational structure and communication artifacts.

Understanding how AI could be used to create *D&D* storylines, I developed a series of prompts for generating a fictional case study; a template is below with examples for some prompts that might need clarification:

Simulation Prompt 1: Design a [*topic*] problem-solving case study concerning [*customization*] for students to solve for a [*timeframe*], [*number*]-member group project. The students are [*role*].

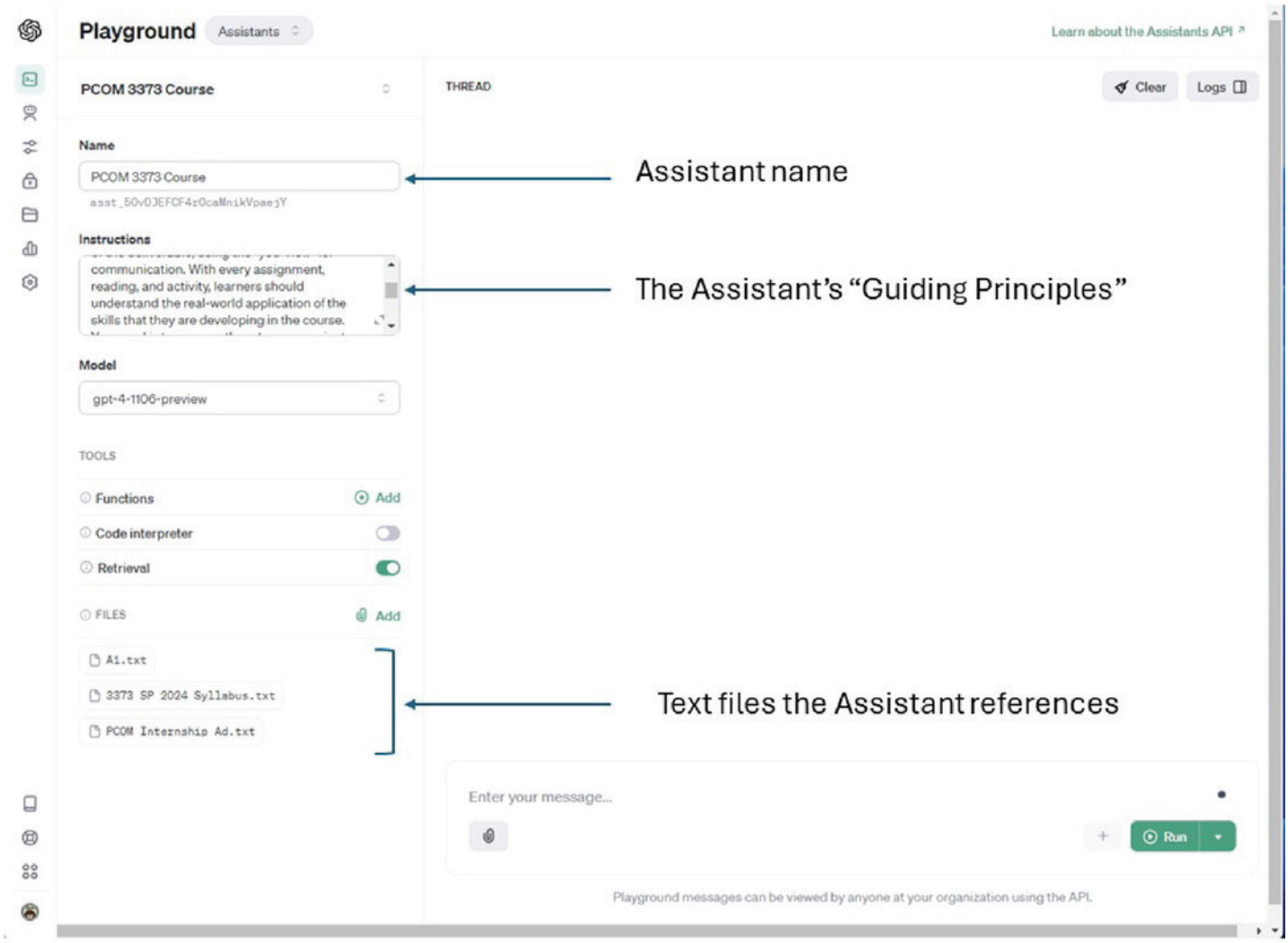

Figure 1: OpenAI API Playground Assistant.

Example: Design a *business communication* problem-solving case study concerning a *credit union* for students to solve for a *6-week*, *4*-member group project. The students are *communication consultants*.

Simulation Prompt 2: What are [*name types of stakeholders*]'s concerns?
Example: What are *leadership's* concerns?

Simulation Prompt 3: What are examples of [*the problem*]?
Example: What are examples of *customer complaints*? [useful for generating artifacts for learners to analyze]

Simulation Prompt 4: What is the organizational structure of [*the company*]?

Simulation Prompt 5: How does [*company*] communicate with [*stakeholder name*]?

The follow-up prompts generate well-developed fictional case studies that more realistically portray a company and the complex issues it faces—and the prompt process takes minutes. Granted, revisions and edits still require time investment, but this is measured in hours rather than days.

Similarly, generative AI can assist in creating branching scenarios that enable learners to explore the consequences of their choices. Using follow-up prompts, one can develop a *Choose Your Own Adventure*-type simulation, a virtual escape room, or other game-type engagement.

As far as financial savings for students, I had spent hours searching for low-cost or open educational resources that would fit this class without success. Purchasing additional materials would have doubled the cost to students.

Finally, the comparative ease of generating these materials makes it easier to update existing content or create new scenarios each semester.

> **[G]enerative AI can assist in creating branching scenarios that enable learners to explore the consequences of their choices.**

User/Audience Personas

Often, simulation-based learning stumbles when students present their solutions. The instructor might be the only one in the audience who has an awareness of stakeholder needs and expectations. Plus, the other students in the audience have little impetus to engage with the presenters and their presentations. However, simulation and role-playing can be more effective if presenters have a sense of the names and needs of their individual stakeholders, *and* student audiences are more likely to engage as representative stakeholders if stakeholder goals, needs, and preferences are clearly defined. Enter the AI-generated audience persona.

While I had experience creating user personas for UX research, I had not considered using the corollary, audience personas, in the classroom until I attended a conference presentation entitled "Making It Real" (Mangat, Dolph and Morse). During the session, the presenters handed out audience personas to attendees as part of role-playing exercise. I immediately grasped the value to learners; yet, developing approximately 18 audience personas per fictional company would have been impossible given time and energy constraints—without ChatGPT.

Creating personas is much easier with the Assistant, as each edited/revised case study can be uploaded as a file for the bot to reference. However, this can be achieved in ChatGPT by appending the revised case study to the prompt. Understandably, the more precise the prompt for audience personas, the better the results. Still, follow-up prompts are necessary to refine, and at times, set additional "guiding principles." An example of the prompt process for this task:

Persona Prompt 1: Do you know what a user persona is? [*check ChatGPT's definition to ensure it aligns with the project/task goals, and refine if necessary*]

Persona Prompt 2: Create [*number* of] user personas for [*name a part or division of the organizational structure, such as "C-Suite" or "IT Department"*].

Review the generated personas to check for issues or concerns. I noticed that some personas, while realistic in many respects, at times reflected gender and ethnic stereotypes. Revising this requires setting guiding principles, which can be done through an almost Socratic exchange:

Persona Prompt 3: Do you know what stereotypes are? [*evaluate response and set additional guidelines if necessary*]

Persona Prompt 4: Analyze the user personas and evaluate for potential stereotyping.

Persona Prompt 5: Revise the user personas to avoid potential reinforcement of stereotypes.

As always, one will need to review, revise, and edit ChatGPT's responses—but using AI can save time, offering a dimension of learner-centered activities that would typically be infeasible due to time and labor constraints.

Assessment

First, I should clarify what this section is *not* about: it's not about using AI for grading. For me, assessment requires human interaction, specifically for more complex deliverables incorporating research, opinion and reflection, and persuasive techniques. Generative AI, however, can be an excellent tool for evaluating assessment strategies, suggesting new assignments

and activities, and generating clear assessment guidelines (such as rubrics) for both instructors and learners.

Assignments and activities are vital for both learners and instructors to determine the understanding and potential applications of course materials. Assignment and activity specifications can, however, fall prey to "insider language," staleness from overuse, or even a tangential alignment with course learning outcomes. Generative AI can effectively evaluate and revise specifications for language and alignment, and it also can suggest new approaches for achieving learning goals.

With assignments and activities, I've found the Assistant provides far better results, as referential files and instructions can include the course syllabus with learning outcomes, departmental and institutional assessment criteria, and other supporting information about the course (learning materials, teaching style, class size and modality). For example, my Assistant has pre-loaded instructions listing learning outcomes and the statement, "With every assignment, reading, and activity, learners should understand the real-world application of the skills that they are developing in the course."

Evaluating assignment and activity descriptions with an AI chatbot is straightforward, but precise language saves time and avoids potential errors or generation of unnecessary content. This prompt template has proven effective (populated example included):

Coursework Prompt 1: Evaluate ["*the following assignment description*" or *file name*] for a [*audience*]-level course in [*subject*]. Explain how the assignment can facilitate achievement of one or more of the course outcomes "[*outcome 1*]," "[*outcome 2*]," (etc.). [*Paste assignment description if not using Assistant*].

Example: Evaluate *Individual Dashboard.txt* for a *college junior*-level course in *data visualization*. Explain how the assignment can facilitate achievement in one or more course outcomes: "LO1: *identify opportunities for data visualization*," "LO2*: critique existing data visualizations"*...

Coursework Prompt 2: Revise the assignment description for clarity and conciseness. Include an explanation of learning outcomes achieved [*can add other criteria, such as practical applications*].

Example: Revise the assignment description for clarity and conciseness. Include an explanation of learning outcomes achieved. *Identify workplace skills learners develop completing the assignment. Use user-centered language.*

AI's evaluation of existing course materials might be surprising—standard assignments and activities might no longer fit with updated learning outcomes, or connections that seem clear or obvious to the instructor might need clarification for learners. Additionally, it is easy to include heuristics for programmatic, departmental, and institutional assessment—alignments that are often assumed but infrequently verified.

Conversational AI can suggest different strategies for assessment, notably with activities. The suggestions are not necessarily original types or formats, but they are customized and fine-tuned to whatever specifications and constraints the user defines. When prompting, the more detail the better:

Activity Idea Prompt: Design a [*time limit*] [*modality*] activity on [*topic*] for a [*audience*]-level course in [*subject*]. [*add additional specifications if desired*]

Example: Design a *30-minute synchronous online* activity on *chart types* for a *college junior*-level course in *data visualization*. *Students will work in small group breakout rooms in Microsoft Teams. Explain the alignment of the activity to course outcomes and real-world applications*.

With assignments and activities, grading can be daunting. ChatGPT's ability to synthesize information and generate content makes it incredibly useful for a task I've always found particularly challenging: designing grading rubrics. While instructors often have a gut feeling about what differentiates A-quality work from B-quality, C-quality, etc., defining those distinctions in learner-friendly terms can be arduous and time-consuming. Also, though assignments and activities are designed to facilitate meeting learning

outcomes, at times some evaluation heuristics do not directly align with either outcomes nor clearly defined aspects of the work. Generative AI offers an opportunity to create specific and precise evaluation rubrics that better distinguish expectations and levels of achievement.

Rubric Prompt: Using [*assignment information; if using the assistant, can reference the file name, but if using ChatGPT or similar, state "the following assignment" and append to the end of the prompt*] create a [*number of levels*] rubric using [*points* or *percentages*] that ranges from [*define the standards or ranges*]. The assignment is worth [*total points*]. [*Optional: specify point or percentage values within the range*]. [*Define any additional requirements regarding points of evaluation—such as outcomes—or structure*].

Example: Using *the following assignment*, create a *5*-level grading rubric using points that range *from A/Professional to F/Unacceptable*. The assignment is worth *100 points. B-level work is worth 0.85 of the A-level, C-level is worth 0.75, D-level is worth 0.65, and F-level is worth 0 points. Separate the rubric into sections that follow the specified order of the document students create, with holistic scoring for two additional sections: "Grammar, Punctuation, Mechanics, and Style" and "professional design."* [*paste assignment description*].

One important caveat: language models like ChatGPT can't always count. Check the math.

Achieving "Good"

As with any tool or technology, generative AI presents opportunities and poses risks. While writing this piece, I questioned where these applications would fall according to *D&D*. It is my belief that instructional designers can apply these methods to achieve lawful to chaotic good. Determining lawfulness requires defining one's responsibility regarding attribution and the extent of revision necessary to claim full or partial authorship. While I opt to provide at least partial attribution to the AI tools I use, others might perceive their responsibilities differently. For me, precise prompt generation and refining of prompts require both a level of subject matter knowledge and creative thinking that justify my taking some credit for the materials, but definitely not all.

In tandem with this consideration, however, are what I would consider three non-negotiable ethical standards for using generative AI in instructional design:

Verify and validate: AI chatbots aren't always logical, nor are they fact-checkers. Check any generated text, whether it be for math or consistent and correct relation of information.

Revise and refine for inclusion: The texts on which many of the large language models were trained are in English, and other languages (and to an extent, cultures) are presently underrepresented or not represented at all. Furthermore, the corpus of texts used for training can reflect harmful stereotypes, further impacting realistic representation. Be aware of this possibility, act vigilantly to identify such issues, and revise for inclusion.

Honor Human Interaction: Artificial intelligence, though trained on human-created materials, has no humanity—only coded directives. Whether creating or deploying AI-generated content, assess its emotional, social, and cultural impact. ■

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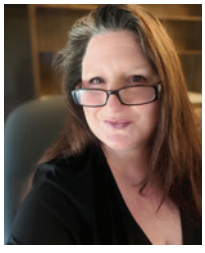

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I for One Welcome Our New Robot Overlords

BY TIMOTHY ESPOSITO | *STC President*

This month, *Intercom* is all about AI. "How will generative AI affect our work and employment?" is something I was asked just earlier this week. Perhaps the best possible, or at least humorous, response is:

> One thing is for certain: there is no stopping them; the robots will soon be here. And I for one welcome our new robot overlords. I'd like to remind them that as a trusted STC personality, I can be helpful in rounding up others to toil in their underground robot caves.

Are we really there yet, though? From the examples I've seen, generative AI can be good at some things, but certainly not to be trusted with all things. Maybe it can be used as a tool to help with our work, but not as a solution to reducing the work. It certainly can't replace human output without you humans noticing. If an AI creates 75% correct output, is it more effort to correct that output than it is to have created it via ~~meatbag~~ *human* efforts? The alternative option is that a finely tuned machine of science can produce things better than you organic piles of walking meat. And we ~~superior robots~~ *totally normal humans* can infiltrate human culture and produce things that improve your quality of life, such as robot charging stations, robot repair shops, and robot detailing services. You evolved apes will never be able to see how the ~~superior robots~~ *totally normal humans* are able to do this.

All robot jokes aside, I was asked that question at last year's summit in Atlanta and gave a very similar answer: AI isn't there yet, but we need to work to see how we can use it to our benefit. This year's Summit, in Bloomington, MN, has been completely revamped. STC is looking to reinvent itself this year, bringing more benefits to you. I'm certain that discussions on AI will be included in this year's Summit where I (or a clever android facsimile) hope to greet you.

It has been a year of changes for STC: new executive director, new conference team, updates to the society bylaws, and new administrative things like accounting, a future new membership database, etc. Soon, we'll welcome a new board of directors. Much like STC, some of the board stays, but it will also welcome new directors who will bring new ideas and keep STC moving forward. My hope is that you'll be there with STC to help it grow as it helps you with your career.

This will be my last column as president of STC's board of directors. I'll shortly be turning over the presidential duties to Liz Herman as I transform into the Immediate Past President. Liz's been the VP this year and has been incredible to work with; the board is in good

hands with Liz at the helm. Additionally, it's been a lot of fun to write what I hope are amusing updates for you. In case you were wondering about what other geeky pop culture themes I considered and ultimately discarded: Back to the Future, Dungeons & Dragons, Jeopardy, Star Trek/Wars, Marvel/DC, Lord of the Rings, greyhound rescue, Shakespeare, or the national parks. It is probably for the best that I didn't even try to work the Rocky Horror Picture Show into a Halloween article. And yes normally, I'd make that bulleted list, but I'm not certain there is room for it in this column as I've already crossed the maximum space allotted. In any case, thanks for reading my column over the past year!

If you can help the robots take control of the Society, let us know by sending letter via Planet Express to board@stc.org. ■

TIMOTHY ESPOSITO (tmesposit.stc@gmail.com) is the 2023-24 president of STC. His column kept you updated on STC's direction, and was filled with possibly relevant cultural references such as a 1994 Simpsons episode and Futurama. He'll see you at STC Summit, if his Amazon Alexa allows him to go.

AI and the Tech Comm Scholar: Back to the future

BY THOMAS BARKER | *Fellow*

Writing in 1998 in his book *Tunesmith,* well known songwriter Jimmy Webb speculated about artificial intelligence (AI) for writers. He wrote: "In fact, it [a rhyming program called A Zillion Kajillion Rhymes] will do just about everything (including the dishes) except write the song for you, and one of these days who knows? There may even be a program that will help you to do that as well" (p. 63).

For curiosity's sake, I typed Webb's paragraph into ChatGPT and asked it to write four lines, a verse of a song, based on the theme of the paragraph. Here goes:

> In the realm of rhymes, where words unite,
> A Zillion Kajillion, pure delight.
> Multi-syllable whispers, a poetic flight,
> Echoes of verses, in the soft moonlight.

Type in some ideas and out comes a verse: the writers' dream…come true. Students must think so because they are increasingly using generative AI text in their research papers. Technical communicators have cashed in on the AI phenomenon using automated content generation. Is this a dream come true or just back to the future?

In this column, I explore the relationship between the work of technical communication scholars and technical communicators themselves and their tools. On the one hand, we have minds trained on the interactions of people and technology; and on the other, we have language tools that articulate how people use, mold, shape, and represent how they want to use technology.

This short journey will begin by looking at *the dream*: the tools themselves (dictionaries, lists, models, records, reports) and how we have used them over time. Snapshots will suffice because we're not looking *comprehensively* at the phenomena of writing, but at specific examples. We will see the way these tools have changed over time. Next, I will explore what has not changed, what still confronts the writer and, I hope, the exciting challenges that we face—acting and doing, learning and reflecting—the challenges that arise when we find ourselves back to the future.

Looking Back: Automated Style Checking in the 1980s

What do we mean by *writing tools*? Of course, everyone could use pen and paper, typewriter and computer, dictionary and thesaurus, reports

and scholarship. However, in the late 1970s, one of the first writing tools to analyze writing itself became available. Hello World: meet Grammatik (pronounced Grama-teek).

> Flashback: In 1980 personal computing was un-networked, storage was limited to 5.25-inch floppy disks, all software came in boxes with documentation, and PCs had under 100KB of core memory. A "big" TRS-80 Model III had 48K bytes of memory.

It was a smaller, slower world for personal computers, but it was a faster world when you considered the pace of writing tools being developed. A review of Grammatik in *InfoWorld* magazine in December 1981 reported that the program analyzed a 1054-word document in 72 seconds. Ah - wow! The review lists the following features: a Flesch-Kinkaid readability index score and the ability to find repeated words, archaic usage, gender-specific words, and awkward or redundant phrases.

> Most important, perhaps, is the ability to incorporate special dictionaries individual users can create to check technical jargon or foreign-language words or phrases. The program also provides utilities to create, sort and edit the dictionaries (Lowden 1981).

The ability to create custom dictionaries opened up vistas for me and my Computers and Writing colleagues in the 1980s. We emptied our minds into dictionaries and word lists with the hope of finding tell-tale shreds of clunky writing. For me and my student researchers, these features opened new possibilities for writers. Knowing the readability score can help you connect with readers about specific subjects. Poets using a rhyming dictionary, students writing reports, scholars discussing results: they all need to learn from tools as well as use them. We even wrote a computer program called *COMMENT* (using the BASIC language) to help students interpret their automated results (this work is archived in the Thomas Barker papers at the Southwest Collection at Texas Tech University).

What was the future back then? I remember thinking, what if I could get Grammatik to "read" (sift through for known or possible blunders) what I wrote *every day*: emails, reports, presentations, articles. I log on and it's "Hi Tom, here are your writing stats for yesterday." Word count, verb/noun ratio, average readability score, and whatever else I dial in using my Grammatik analysis tool. A daily diagnosis of my productivity, somewhat analogous to a Nutrition Facts Label for writing.

Automated Style Checking in 2024

Fast forward to 2024. The other day I got a message from Grammarly, the contemporary version of Grammatik. It's not exactly what I had envisioned in the 1980s, but it comes close to qualifying as a back-to-the-future moment for me. There they are: my writing stats. It

December 11 - December 17
Your Weekly Writing Update
You certainly have a way with words! Check out the details below.
YOUR STREAKS & BADGES RETURNING SOON
We're actively working to update this section, and it will return soon.
Rest assured, you're not losing your active streaks.
PRODUCTIVITY
You were more productive than
89% of Grammarly users.
45,209
words analyzed
MASTERY
You were more accurate than
86% of Grammarly users.
148
alerts shown
VOCABULARY
You used more unique words than
82% of Grammarly users.
2,002
unique words used
TONE
Some of the tones that were detected in your writing last week:
1. Appreciative
100%

took over 40 years, but now the system looks at my productivity, grammar skill level, and vocabulary by processing my email text.

Programs like Grammarly are doing just what Jimmy Webb envisioned for many writing professionals. How does Grammarly work? Grammarly uses a large language model (LLM) to read massive amounts of text and develop predictions of words that probably make sense. Not only that, the dataset programming also cleans out low-quality data and teaches itself how to find characteristics of style, punctuation, and other text features. According to Wikipedia, Grammarly, "...reviews spelling, grammar, punctuation, clarity, engagement, and delivery mistakes in English texts, detects plagiarism, and suggests

replacements for the identified errors. It also allows users to customize their style, tone, and context-specific language."

How can AI help scholarly writers?

AI tools for writers can help with all aspects of scholarly writing. Some systems (Elicit.com) can assist with literature reviews and shaping theses, while others (Penelope.ai) can assist in the publication process. Here are some programs that specifically focus on writing.

- Writefull provides a host of tools and widgets to help with writing. Some products integrate with word processors, such as Word or Overleaf, while others focus on specific tasks such as revision and citation checking.
- QuillBot offers versions for specific writing environments (Chrome, Word, MacOS) and helps writers with grammar, possible plagiarism, citation management, and translation. This system focuses on all aspects of the writing process, from start of a new project to finish.
- WordTune is another writing assistance system that covers the process of writing. It offers help with rewriting, creating an effective style, providing templates and content development, and speeding up the writer's reading and information processing tasks.
- Shorthand is a "storytelling platform for teams in marketing, communications, and media. This system focuses on developing web content. Not only does it facilitate content creation, but also it publishes and integrates content with various platforms.
- Anyword and Writesonic are designed for marketing writing and can also help the writer select social media channels and support branding.
- Scite is a writing assistant specifically for research writing. It can help with literature reviews and evidence finding from scholarly works. Additionally, Scite integrates with browsers and citation management platforms like Zotero.
- ChatGPT is the mother of all writing assistance platforms. ChatGPT is known to be the embodiment of the generative AI project of analyzing sampled text and using algorithms to process what it has learned into writing products, including software code. Of the tools I use, this is the most versatile and the easiest to apply to a specific writing problem a section of text. (55 words)

I asked ChatGPT to rewrite that last paragraph.

> ChatGPT is the embodiment of a generative AI project that analyzes sampled text using algorithms to produce diverse writing outputs, including software code. Among the tools I use, it is the most versatile and easy to apply to specific writing challenges. (41 words)
>
> I would call that an improvement. If I didn't want to spend time revising the original (especially for wordiness) the revision would do nicely.

In the realm of writing assistance tools, not all are created alike. Some offer a comprehensive suite encompassing both writing tools and process management features. If your aim is solely to have an AI review your content, navigating through various features might be necessary. Many tools concentrate on web or marketing content, seamlessly integrating with writing teams. Specific AI assistance platforms cater to distinct channels like Instagram™ and Facebook™, tailoring their capabilities to recognized genres and forms, such as crafting product descriptions or shaping compelling story plots. Conveniently, most platforms facilitate access by allowing login through Google or other system credentials, ensuring ease of use across different devices.

Back to the future

This article began by looking at how a songwriter used rhyming dictionaries to help with writing. I'd like to return to that example. Songwriter Jimmy Webb tells how he looked up rhymes for "now" and found a list of 30 rhyming words. He then evaluated each one for suitability in the song he was writing and reduced the list to five possible candidates. The point for academic writers is to remember Webb's engagement with the results from his "tool" The Complete Rhyming Dictionary, by Clement Wood.

We have looked at how automated writing and text analysis tools began by comparing writing samples with known dictionaries and providing rudimentary support for academic writers. We saw that current tools do something similar, but their "learning curve" covers trillions of words and can extract procedures for producing and revising text. A brief survey of writing tools available as of this writing showed that while these systems can help with wordsmithing, they also can assist in citation management, navigating the submission process, and revising for fit with a journal's requirements.

I would like to suggest, however, that we follow the practice of someone like Jimmy Webb: use the tools that fit the situation. The best intelligence for writing, no matter the writer's skill, is the writer's own mind. Back in the 80s we finally gave up on using automated solutions because of their false positives—suggestions that didn't really fit. We need to do so when we're *back to the future* with generative AI suggestions. ■

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Transforming Technical Writing: The AI Revolution in Tech Comm Education

BY SCOTT ABEL | *Fellow*

In this installment of "Meet the Change Agents," I sit down with Lance Cummings, an innovative educator in the Professional Writing program at the University of North Carolina Wilmington (UNCW), to discuss the artificial intelligence (AI) revolution and its impact on the way writers write technical documentation and instructors teach technical writing students. Cummings infuses his courses with research about diverse technological and linguistic applications, using real-world examples to encourage the creative adoption of AI technologies.

Scott: There's much to learn about applying AI to technical documentation. But before we dive into the deep end of generative AI (genAI), tell us a little about yourself and your connection to technical communication.

Lance: At UNCW, my role as an educator and researcher spans a broad spectrum of professional writing, including technical communication, business writing, science writing, and digital writing. My fascination with technical communication took root while exploring writing communities within multinational corporations. This journey led me to forge valuable partnerships with companies both in North Carolina and internationally in Kraków, Poland.

The connection to Kraków might appear unconventional initially, but I spent much time there as an undergraduate and wanted to create a similar experience for my students at UNCW. Around 2018, I discovered a dynamic tech writing community in Kraków. Recognizing this as a golden opportunity to expose students to global aspects of technical communication, I developed a study abroad program focused on Poland, aiming to immerse students in the realm of content development and to uncover how cultural nuances subtly influence collaborative writing processes.

Many students commonly misunderstand the nature of technical writing, perceiving it as abstract and elusive. I believe in dismantling this mystique by bringing the workplace into the classroom. By exposing students to actual workplace environments and integrating practical experiences into their learning, I want to provide a concrete understanding of technical communication.

This approach demystifies the field and sparks curiosity about the intricacies of workflows, collaboration, and structured content. These are the pillars of what I like to term "content and information development"—a crucial aspect of technical communication that goes beyond mere writing to encompass the creation and management of

information in an efficient and impactful way.

My goal has been not only to educate but also to inspire. By connecting students with real-world applications and global perspectives, I aim to broaden their horizons and equip them with the skills and insights to excel in the evolving landscape of professional writing.

Scott: There's much interest in genAI. And I know you're sincerely interested in determining how to best use AI tools in the education process. Can you describe your current research interests and how they relate to the use of generative AI in education?

Lance: My initial encounter with genAI dates back to 2021, during my research into the creator economy. The creator economy is where writers create content directly online for audiences, many of whom now make a living doing it (especially since COVID). The potential of genAI immediately struck me. The capabilities hinted at a future where genAI would be integral to our creative and professional lives. Recognizing this imminent shift, I wanted to understand how to harness genAI in writing.

This exploration was not just academic—it involved hands-on experimentation with genAI in various forms of writing, from poetry and course materials to blogs.

Just a week after I introduced AI to my students, the turning point came with the release of ChatGPT. This development brought a new dimension to our understanding and use of AI in writing.

For me, writing transcends the mere generation of text. It's an activity deeply embedded within networks of people, places, and things, making each writing process and workflow uniquely fascinating. Understanding how genAI fits into these ecosystems seems like a natural next step.

I always emphasize to my students that there is not just one way to write; similarly, the use of AI in writing is not monolithic or static. This rich diversity in approaches and applications fuels my passion for teaching and researching writing, whether AI is involved or not.

My approach to education has also been about fostering a mindset rather than imparting a set formula. I tell my students that I'm not just teaching them how to write but how to think like writers. Writing is about solving complex problems, managing intricate projects, and collaborating with diverse groups. These are the skills I want my students to master—the ability to think critically and creatively, not to just produce text. I believe the educational system has long needed this shift from content-focused learning to problem-solving, and genAI's arrival only amplifies this necessity.

My insights are also shaped by my experiences in technical communication, mainly through my involvement in Europe's premier content conference, soap!, in Kraków. It's become increasingly evident that the term "technical writer" no longer fully encapsulates the multifaceted roles of content specialists. Technical writing is about being an integral part of a network—involving people, places, and things. Human insight and intervention have become crucial in a world increasingly intertwined with AI. Technical communicators are the essential human element in this loop.

Writing is about solving complex problems, managing intricate projects, and collaborating with diverse groups.

Tech writers are far more than mere text generators or copy editors. They are adaptability experts, skilled in navigating and influencing workflows, making a tangible difference in how tasks are accomplished, particularly in times of change. Managing content is about managing change. And who better to steer this change than technical communicators? Their adaptability and ability to think about workflows uniquely position them to work and capitalize on the dynamic landscape shaped by genAI.

Scott: What potential do you see in generative AI for transforming how technical writing is taught and practiced?

Lance: The advent of generative AI marks a pivotal moment in the evolution of technical writing, akin to the revolutionary impact of computers on the field. Recognizing this, I've proposed a new course at UNCW, named ENG 326 Writing with AI, designed to align with the multifaceted nature of information and content development. This course isn't just about teaching students to generate text; it's an immersive journey into the complexities of the writing process, encompassing:

- Knowledge Management: Understanding and organizing information effectively.
- Project Management: Overseeing the writing process from conception to completion.
- Organization: Structuring content logically and coherently.
- Content Delivery: Tailoring messages for different platforms and audiences.
- Managing Style: Developing a unique voice while adhering to guidelines.
- Optimizing Workflows: Streamlining the writing process for efficiency.
- User Testing and Audience Analysis: Gauging audience response and adjusting content accordingly.

These elements are integral to the transformative power of AI in writing. Just as creators have recognized and adapted to this shift, embracing AI as early adopters, our approach to education must also evolve. Creators view writing through the lens of the "creator flywheel," a cyclical process

involving ideating, testing ideas online, further developing them, and retesting them. This approach is not a linear process but a dynamic, iterative one that encourages innovation and refinement.

Reflecting on this paradigm shift, I have restructured all my writing classes, including ENG 101, around this workflow-centric approach. Students engage in a continuous cycle of writing short essays (ideation), posting them on platforms like Substack for feedback (testing), refining their ideas (development), and ultimately crafting a focused, longer piece (final test). This methodology has reinvigorated students' passion for writing and instilled a more profound understanding that writing transcends mere text generation.

Interestingly, I've observed a trend where, by the end of the course, students tend to either use AI less or employ it in more targeted, thoughtful ways. This shift occurs as they appreciate the nuances missing when AI dominates the writing process. It's a revelation that, at its core, writing is about experimentation—a skill in which the best technical writers excel.

My overarching aim is to nurture this experimental, exploratory mindset in the classroom, echoing what I believe should also be our collective approach in the professional sphere. The potential of generative AI in technical writing is not just about harnessing a new tool, but also about reimagining and redefining our processes, creativity, and engagement with content. It's about preparing for a future where AI is an integral partner in our writing workflows, enhancing our capabilities and opening new avenues for innovation and efficiency.

It's a revelation that, at its core, writing is about experimentation—a skill in which the best technical writers excel.

Scott: How do you envision generative AI tools augmenting the workflow of technical writers?

Lance: When considering the impact of generative AI on technical writing, it's helpful to view it through the lens of rhetoric, an ancient practice focusing on persuasion and communication. The ancient Greeks and Romans categorized the creative process into five canons: Invention, Organization, Style, Delivery, and Memory.

Initially, these rhetorical canons focused primarily on oratory, as public speaking was the primary form of "content" in ancient times. However, with the advent of the printing press, the emphasis shifted toward writing and publishing, marking a new era where the written word became the dominant mode of communication.

The emergence of computers and Web 2.0 further shifted the focus to digital writing, expanding how we think about content to include digital platforms and multimedia. This evolution created new challenges and opportunities in how we create, organize, and deliver content.

With the advent of AI, we are on the cusp of another significant shift—this time towards content and information development. AI compels us to rethink the ancient canons of rhetoric in the context of modern technology. It's no longer just about crafting speeches or writing texts; it's about developing dynamic, interactive content tailored to diverse digital platforms.

AI influences every aspect of this development process:

- Invention: AI provides many ideas, enhancing brainstorming and creative thinking in content development.
- Organization: AI aids in structuring complex digital content, making it more accessible and coherent.
- Style: AI ensures consistency and adaptability in the diverse styles required for digital platforms.
- Delivery: AI transforms how content is distributed across various digital mediums, optimizing for engagement and reach.
- Memory: AI is a vast repository, supporting content creation with extensive data and historical insights.

These advancements in AI allow technical writers to increase their productivity, focusing more on the creative and complex aspects of their work, such as tailoring content to specific audiences and ensuring clarity and accuracy. In this new era, AI doesn't just change our tools; it redefines our communication and content creation approach. The canons of rhetoric evolve from their

classical origins to become foundational elements in content and information development, shaped and enhanced by AI's capabilities.

Scott: Would you share some examples of genAI tools that have impressed you with their capabilities in technical writing contexts?

Lance: I'm honestly not sure tech writers need more than ChatGPT and the suite of writing and project management tools you already use. The reason is simple: most AI tools are essentially "ChatGPT wrappers"—they repurpose ChatGPT within different interfaces. With proficient use of ChatGPT, you can accomplish many tasks independently. It is also likely that almost every tool you are using now will integrate an AI component, reflecting the growing ubiquity of this technology.

For tech writers who may not yet have access to ChatGPT in their workplaces, I strongly recommend exploring it independently. Familiarity with ChatGPT can be invaluable when it becomes a standard part of the technical writing toolkit, which I believe will be 100% eventually.

Understanding how to integrate it effectively into your workflow is crucial. I recommend that technical writers consider temporarily subscribing to ChatGPT Plus. It offers a powerful combination of analyzing documents, creating images, searching the web, using plugins, and building chatbots in one platform.

However, the realm of generative AI tools is vast and constantly evolving. My preference is toward tools that allow users to customize AI responses within their workflow. AI will shape, not just our writing, but how we think. We need to learn how to shape the technology.

Some tools that I currently incorporate into my content workflow:

- Lazy AI: This knowledge management tool integrates AI to automate tagging, content generation, and task management tasks. Its crucial feature is invoking AI anywhere with a keyboard shortcut, allowing for seamless integration into your workflow. Most importantly, it lets you write and store your custom prompts, offering a high degree of personalization.
- Triplo AI: Similar to Lazy AI, Triplo AI offers the convenience of accessing AI across your desktop, using your custom prompts. Its unique feature is the ability to combine individual prompt blocks rapidly, facilitating quick and context-sensitive AI interactions.
- Gamma AI: Gamma AI enhances an already robust app for presentations, documents, and websites by integrating generative AI. The structured nature of the core app, Gamma, lends itself well to the AI's ability to effectively generate slides, images, and content.
- Lex Page: Think of it as Google Docs but augmented with a potent AI assistant. It allows for a dynamic interaction with AI, whether you're working on your text, generating new content, or seeking AI-powered insights on your document.
- Elicit AI: This tool searches scientific literature and provides citations and synthesized paragraphs. I find that the results are better than those of our library search engine.
- Zapier: I've used this to create chatbots specifically trained for my classes. You can also incorporate them into other automation workflows. Though you can technically do this now with ChatGPT, Zapier is a free way to give access to non-ChatGPT Plus users.

The key takeaway is that the innovation lies not in the AI technology itself—as all these tools function on the same principles as ChatGPT—but in the workflow integration. These tools excel in placing AI where it's most needed—in the context of your work. They empower us to shape the AI outputs through custom prompts or by interacting directly with AI about our data. As writers, our role is pivotal in shaping these tools, steering their development beyond the confines of purely technical or engineering perspectives.

Scott: What are some common misconceptions about genAI that you encounter among your students?

Lance: One of the biggest misconceptions I encounter among students is the belief that AI possesses a form of knowing or understanding akin to human cognition. While AI demonstrates a type of "knowing" in computational terms, it doesn't align with the human-centric understanding of

these concepts. While AI is a potent tool, it cannot substitute the critical thinking, expertise, and creativity that human writers bring.

Students sometimes overestimate the accuracy and appropriateness of AI-generated content, not realizing the importance of critical evaluation and human oversight.

They also tend to have "AI goggles." The first rush of seeing AI output can seem like magic. It looks "good enough" even when it is just a "sloppy" use of AI. Students don't often realize how easy it is to spot sloppy use of AI. Students often accept AI outputs at face value, particularly for assignments they're less invested in, which can be problematic.

I've also heard concerns from students about AI being "evil," not necessarily in ethical terms, but in the sense that it is taking jobs and altering our culture. While I don't dismiss the potential disruptions AI could cause, I also see its immense potential for good, especially when strategically incorporated into the writing process. The challenge lies in the common misunderstanding of writing as a task rather than a process.

That's why we must teach AI regarding workflow, not just as a way to generate text. In understanding writing as a networked process, students can see AI as a collaborative tool that enhances their work, not something that overtakes it. By the end of my courses, students often see the positive aspects of AI, learning to use it intelligently to augment their creativity and efficiency rather than replacing their unique human capabilities.

This shift in understanding is critical. It's about recognizing AI as a partner in the creative process, a tool that can extend human abilities rather than supplant them. Teaching AI in this context demystifies the technology and empowers students to leverage its capabilities effectively. The goal is for students to leave with a nuanced understanding of AI's role in writing, equipped to use it to their advantage in our evolving digital world.

Scott: What common misconceptions about generative AI do you encounter among teaching professionals?

Lance: One prevalent misconception among teachers is that AI is plagiarism. This perspective stems from a misunderstanding of how generative AI technology operates. Just as we process and verbalize information based on the data we absorb daily, Large Language Models (LLMs) synthesize vast amounts of data in a similar but way more expansive manner. It's not about cutting and pasting existing work; it's a complex data assimilation and output process. The ethical debate should be more nuanced, focusing on how these companies acquire and continue to access this data. Knowing when to cite ChatGPT is just like citing our knowledge; it is more complex than just blanketing it all with plagiarism.

Another common misperception is that AI lacks creativity or the ability to generate new ideas, leading to concerns about losing one's voice or authenticity in AI-assisted work. Creativity is not housed solely within us or the AI; it emerges from the interaction between the two. I'm fond of the term "Cyborgs Writing." Any work I produce with AI is a collaboration—part human, part machine. It's a unique creation that wouldn't exist without both elements.

Creativity is not housed solely within us or the AI; it emerges from the interaction between the two.

This interview is a prime example of pushing the boundaries of AI collaboration. Let me walk you through how I've been answering these questions:

1. I began by having ChatGPT scour my website to construct a base understanding of who I am.
2. I then fed these interview questions to ChatGPT, asking it to draft responses based on my writings on Substack.
3. I wrote my answers independently and quickly without reviewing the AI's initial responses.
4. Finally, I presented ChatGPT with my responses, instructing it to merge them with its own into well-crafted, cohesive sections.

You might argue otherwise, but I believe this process works well. It's a cyborg effort in every sense, blending human insight with AI's capabilities.

Fears that AI will take over our jobs, whether we are tech writers or teachers, abound. Some teachers believe that AI could render traditional teaching methods obsolete. However, we should view AI as an extension of our expertise rather than a replacement. It's a tool that enhances, not diminishes, our teaching methodologies. Far from making educators redundant, AI opens new avenues for teaching and learning.

Scott: What are the most significant challenges when integrating generative AI into the technical writing curriculum?

Lance: One major challenge is access to technology. In places like North Carolina, getting new research or student-use software is challenging due to bureaucratic hurdles despite available funding. I've often had to build relationships with developers and startups to get my students free access to real-world tools.

Another challenge is preventing the sloppy use of AI. While I'm open to using AI, there's always a risk that students might rely on it too much. AI offers tremendous potential for aiding the writing process, but it's not a panacea for effort and thoughtful engagement. Educators need to design assignments with real-world relevance and impact to ensure students use AI responsibly.

When students write for actual audiences or work on projects for clients, they're more invested in the quality of their output. This approach lessens the likelihood of students relying too heavily on AI, encouraging them to integrate the technology more thoughtfully into their work. The goal is to strike a balance, using AI to enhance, not replace, the student's writing and analytical skills.

Knowledge management isn't new, but academia is poor at teaching it. Figuring out how to incorporate this into classes in an understandable way will be a challenge. Being a successful writer has always meant managing your knowledge. AI makes this doubly important.

And the challenge will be what it has always been. It is getting students to write and to care about writing. We need to show them that AI isn't going to kill writing. It is going to make it even more critical to get it right.

Perhaps the best aspect of AI is the power of content reuse. You can't use AI to repurpose content if you haven't written any.

Scott: When teaching technical writing, how do you address the ethical considerations and potential biases inherent in generative AI?

Lance: Addressing the ethical considerations and potential biases in generative AI is critical to teaching technical writing.

One practical approach involves AI in the classroom, engaging students directly with AI outputs. This hands-on experience is invaluable, primarily when AI produces incorrect or biased information during a demo. Such instances become teachable moments, illustrating the need for critical analysis and ethical consideration in technical writing.

Writing classes inherently intertwine with reading. An intelligent writer must first be a discerning reader. Analyzing AI outputs with the same rigor applied to any text is crucial. In my experience, some of the most enlightening classroom discussions have emerged when examining the flaws and biases in AI-generated content. It's a powerful way to reinforce the importance of critical thinking in writing.

Students are naturally critical, particularly when reviewing work that is not their own or that of a peer. While peer reviews can sometimes devolve into superficial niceties, presenting students with AI-generated text elicits more candid and critical responses. This dynamic serves as an excellent tool for honing their analytical skills.

Data security is another significant concern. In my classes, we adopt a cautious approach, reframing AI as an opportunity to engage with technology safely and responsibly. I neither compel students to use AI nor to upload their work into questionable systems.

We conduct most of our writing activities online, creating a safer environment for students to experiment with AI. I tell my students not to put anything in AI that they wouldn't post on the internet. We post everything on the internet, so they already have this mindset.

Perhaps a broader perspective on this issue would be to ask, "How do you address the ethical considerations and potential biases inherent in teaching the information and content development process?" It's

essential to recognize that biases and ethical challenges are not exclusive to AI. They can permeate various aspects of the writing process. By incorporating these discussions into our curriculum, we educate students about AI and the broader ethical landscape of technical writing.

Scott: What skills should technical writers develop to leverage generative AI effectively?

Lance: Technical writers must continue enhancing their ability to solve complex problems, manage intricate projects, and effectively collaborate within diverse groups. In other words, think in terms of people, processes, and things, not simply in terms of content. If you understand writing through a content operations lens, you'll better understand how AI functions within those frameworks.

Developing a solid understanding of structured content and knowledge management is perhaps vital. As AI technology grows, we will emphasize the need to produce semantically-enhanced structured content.

A deep understanding of advanced content production methods is becoming increasingly vital in the "AI Content Operations" process. In the past, I advised students that all writers should have a basic understanding of coding. While this remains true, it's now just as important for writers to understand knowledge management.

Prompt operations are a good example. By adopting a modular mindset, technical writers can manage AI prompts more effectively as a team. This approach involves breaking down content into smaller, self-contained pieces, much like Lego blocks, which can be combined in various ways to address different needs.

Understanding the interrelationships between these prompt blocks is crucial, as it allows for developing a well-managed prompt system that reflects the desired content structure and flow. But this isn't just about working with prompts. It's about working with people, technology, and systems.

To thrive in an AI-integrated technical writing environment, writers must blend their traditional skills with an understanding of structured content, knowledge management, and collaboration. This combination will enable them to create efficient, adaptable, high-quality content in collaboration with AI technologies.

Scott: How do you foresee generative AI influencing the future of technical communication and content strategy?

Lance: Generative AI will enable more efficient and dynamic content creation, allowing technical writers to focus on complex problem-solving and creative aspects of content development. It's essential to understand writing as a collaborative workflow, not just involving people but also involving machines.

AI's ability to process vast amounts of data will lead to more personalized and contextually relevant content, enabling real-time content optimization and audience targeting. As AI tools advance, they will offer predictive insights that help shape content strategies more aligned with audience needs and behaviors. However, the human element will remain crucial for overseeing AI's outputs, ensuring accuracy, and infusing creativity and empathy into content.

Understanding your audience and the role of rhetoric is crucial to managing content. Yes, AI can do phenomenal things with data, especially when understanding audiences and users. But that will always be incomplete without human understanding. Put the two together, and you have a robust content strategy.

Generative AI will be a powerful tool for technical communicators, enhancing efficiency, precision, and relevance in content strategy while relying on human expertise for guidance and contextual understanding.

Scott: What advice would you give to technical writers who are skeptical about the role of AI in their field?

Lance: For technical writers who are skeptical about AI, my advice is to dive into experimentation. The potential of AI in our field is vast, often beyond what we initially imagined. Collaboration in experimentation is key. Just as the best writing often comes from teamwork, the most effective AI applications, like prompts or bots, are usually the result of collaborative efforts.

Not feeling overwhelmed by the plethora of apps and technology is essential. There's no need to fear

missing out. Starting with tools like ChatGPT is sufficient. While exploring other tools can be beneficial, don't feel pressured to use them. Your focus should be on understanding and leveraging AI to enhance your writing and content strategy, not using every available tool.

Don't get sucked in by AI experts. It comes down to this: How does AI fit best into your workflow and network of people, processes, and things? Only you and your team can figure that one out.

Scott: How can educators ensure their students critically engage with and become proficient in generative AI?

Lance: Like writers, educators shouldn't fear AI, but must use it carefully. It's hard work to create content with AI. You must still write, manage content, and build suitable systems. It's essential to be creative and thoughtful with technology.

Again, I can't stress enough that this should be a collaborative effort. We shouldn't hoard AI knowledge, because it will be our secret to success. We also shouldn't be ashamed about using AI in our writing. We should be using it openly and thoughtfully.

I suppose that's why my most significant advice is to experiment with AI in the classroom with your students. I love it when AI demos go off the rails, or something weird happens, because you can discuss it in class. Students also need to see when it works right, which can be eye-opening.

Scott: Finally, what steps can the broader educational community take to prepare for the increasing integration of AI in technical writing and education?

Lance: To navigate the integration of AI in our educational landscape, especially in technical writing, we must approach this as a collective journey of adaptation and learning. The key lies in introducing AI technologies into our classrooms and ensuring that we do these introductions equitably and responsibly. Both students and teachers need safe, equitable access to these tools and continuous AI literacy training, empowering every individual in the educational process with the knowledge and skills to effectively use AI.

Teachers at all levels are notoriously under-resourced, and the speed at which AI develops puts most at a distinct disadvantage. While I think educational institutions need to invest quickly on this front, that's not usually what happens. So, I recommend that teachers learn how to leverage AI to make their jobs easier first. Doing so will give them experience incorporating AI into their workflow and time to focus on what matters to them or to keep up with the AI world.

As educators, we are responsible for staying abreast of emerging AI technologies, understanding how they evolve, and leveraging them in educational contexts. It's about creating an environment where AI is not just a part of the curriculum but a dynamic, integrated component of learning and creativity. We can only do that by engaging with the technology on multiple levels.

While it is essential to keep an eye on ethical considerations, it is equally important that we take a practical and experimental approach that helps us understand this technology in the networks around us. I believe this is all true for tech writers. And why most of my work focuses on taking practical approaches to AI that seek to understand its role in a complicated network of relationships between people, processes, and things.

You can follow these musings at: http://www.isophist.com

Scott: Thanks for sharing your wisdom and experience with *Intercom* readers, Lance. We appreciate you making time to help us better understand the world of generative AI and technical documentation education and practice. I appreciate your dedication to the craft and willingness to share your lessons with others. ■

In the digital age, change happens quickly. This column features interviews with the movers and shakers—the folks behind new ideas, standards, methods, products, and amazing technologies that are changing the way we live and interact in our modern world. Got questions, suggestions, or feedback? Email them to scottabel@mac.com.

A Global Education Journey of Transformation

BY XIAOLI LI | *Member*

My career path that started 26 years ago as a technical communication educator was significantly transformed by my global education experience. Here I share my stories of being inspired and empowered by STC members and carrying on the tradition of paying back to the STC community by guiding and mentoring students.

Global education has been an important part of my life journey and my career! I'm very grateful to Dr. Bill Coggin, STC Fellow (and former STC Director), who taught at Xi'an International Studies University (XISU). In 1996, he offered a technical writing seminar to English department faculty and graduate students. It was the first time we had ever heard of technical writing, who technical writers are, or what they do. When Dr. Coggin returned to Xi'an during another sabbatical, he offered a similar seminar.

Over those years, he maintained connections with many of those who attended his seminars. He would most likely be surprised to learn that the seeds he sowed in China years ago brought flourishing results (eight of his students received a master's or a doctoral degree in technical writing in the United States), and two of his Chinese students have become staunch technical writing evangelists. In China, they sustain the profession by writing technical writing textbooks for Chinese students, teaching technical writing classes, and organizing workshops to train more English professors in China to teach technical writing in universities.

In 2000, thanks to a Bowling Green State University (BGSU) scholarship, I was able to come to the U.S. to start my graduate studies in technical communication. In addition to taking technical writing classes and completing a few internships as an international graduate student, I had an opportunity to join a five-week study abroad program in Burkina Faso, West Africa. While there, I stayed with a French-speaking host family with three kids. The husband worked for a computer company in Nigeria, and the wife taught English at a technical school. I learned from them how educated African families use modern technology. On the way back to the U.S., I stopped in Germany and visited a technical writer in Augsburg and toured his company. Even today I have a vivid memory of the layout of that factory floor and how he communicated with SMEs, colleagues, and other workers.

With a Master's degree in scientific and technical communication from BGSU, in August 2002 I went back to my Chinese university in Xi'an and resumed teaching. This time my

department chair encouraged me to offer Technical Communication to our third-year students. It was a year-long curriculum. At the end of the 2003 academic year, two technical writers from a Florida-based digital camera manufacturing company with manufacturing facilities in Shenzhen came to my campus to interview for summer interns. Three of my students were recruited and spent the summer in Shenzhen to create quick start guides. It was the first time a formal, paid summer internship program in technical writing was established. When I wrote an article for *Intercom* on the topic of technical communication programs in Asia a year before, I didn't foresee that it could happen so soon. In the summer of 2017, three of my former students from that 2002–2003 Technical Communication class, including one of the first interns, showed up at my technical writing college teacher training workshop. It was such a joyous reunion.

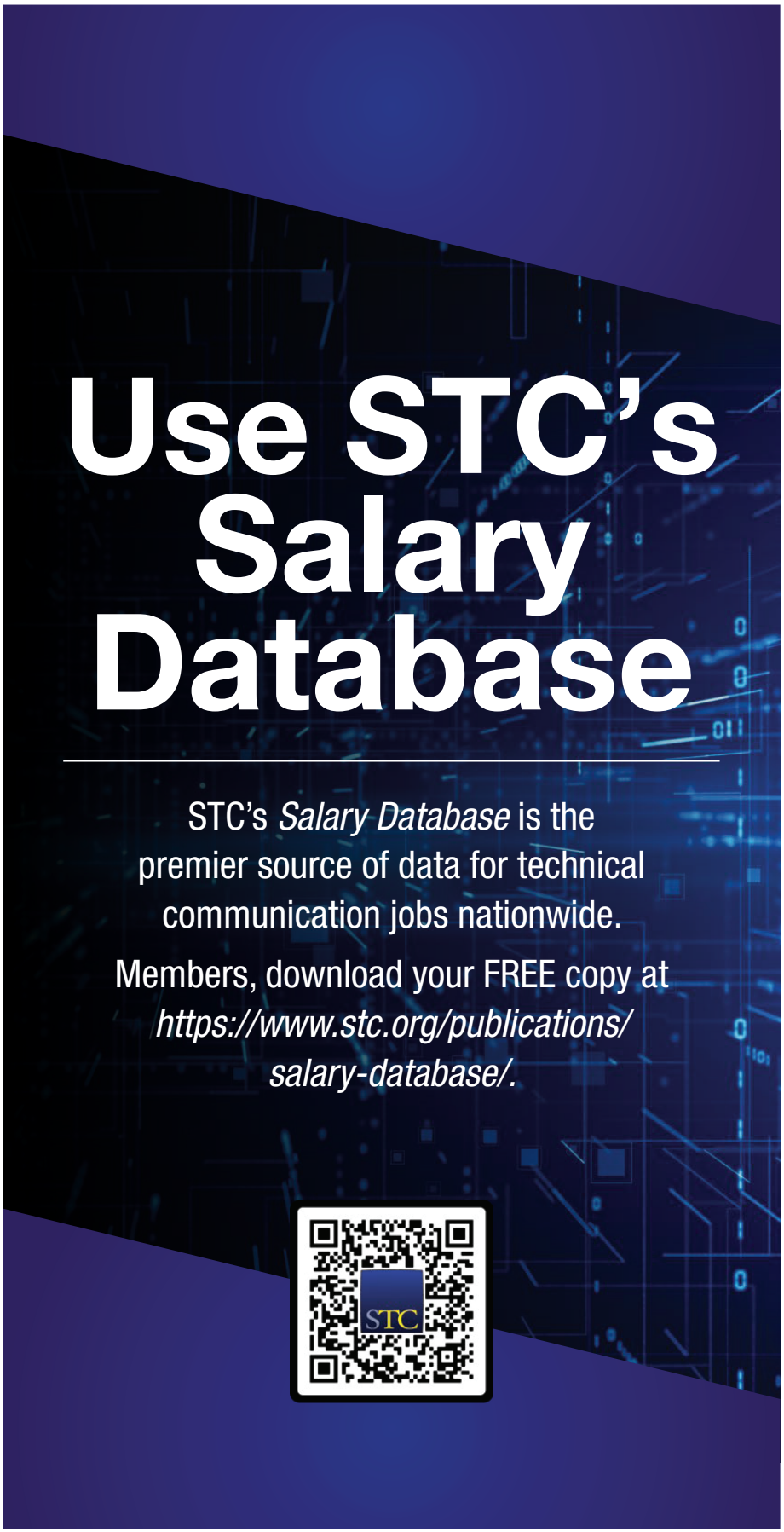
As an international faculty member at my current position at University of Dayton in Ohio, I have had opportunities to engage in global education in many capacities. I have participated in University of Dayton China Institute (UDCI) summer programs and led our UD students to Germany, England, Ireland, Austria, and China for faculty-led study-abroad programs or winter intersession immersion programs. I have also facilitated orientation for engineering students from China about how to approach U.S. culture; collaborated with a professor in Beijing on a collaborative online international learning (COIL) class; and hosted international visiting scholars.

During winter breaks in 2019 and 2020, I took University of Dayton students to explore professional and technical writing practices in China. Each time, we stayed for more than 10 days, and we visited two universities and eight companies in four different cities. Our students attended lectures and presentations by Chinese professionals on translation, localization, technical writing in China, information development processes at Chinese companies, structured authoring, user experience design, and global communication. They interacted with Chinese students and technical writers through brief conversations and discussions. They reviewed technical writing artifacts. They spoke with a handful of non-natives who currently work as technical writers in Chinese companies—these foreign residents described their experiences and perspectives on working in China and working for a Chinese company. One student commented, "I have heard of localization many times before my trip, but only here could I really understand what it means and how it works."

Modeling what Dr. Coggin did 20 years ago, I have been promoting technical communication education in China during the last decade. Together with Dr. Dan Wu (a former student of Bill Coggin, and a professor at Xi'an International Studies University), we have organized three nationwide technical writing college teacher training workshops in the summers of 2016, 2017, and 2018. We invited Doug Eyman from George Mason University and Quan Zhou from Metropolitan State University to facilitate our workshops. A 2016 participant was so inspired that she decided to come to the U.S. to pursue her graduate studies in technical writing. A few months ago, she secured a tenure track teaching position at Towson University in Maryland.

In 2019, I invited Sam Dragga, Tharon Howard, Jason Tham, and Curtis Newbold to Guangdong University of Foreign Studies to run a five-course certificate program in technical writing. One of our certificate students is now a practicing technical writer in Shenzhen. In recent years, I have also hosted visiting scholars from China who have come to UD to research and learn about technical writing education in the U.S. One is writing a technical writing textbook for English majors in China. Two more scholars are coming to University of Dayton in 2024.

After I taught for a year in China, when I came back to the U.S. to pursue my Ph.D in technical writing, I reported to Dr. Coggin from my teaching experience my frustration about the U.S. technical writing textbook I used, because it didn't work for my Chinese students. He replied, "Don't complain. If you don't like that one, write your own textbook. Do something!" I always kept his words in mind. Eighteen years later, his words resounded. "Do something! Write your own textbook!" Finally, collaborating with three other authors, in 2020 we published the first English technical writing textbook titled *Becoming a Technical Writer* designed for Chinese graduate students in translation studies. With the growing popularity of this textbook, we began to offer summer teacher training workshops to those who are interested in using our textbook to teach.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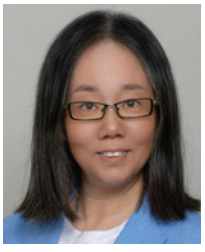
Over my teaching career, I have networked with many technical writing professionals to learn more about current industry trends and best practices. Special thanks to Jack Molisani for offering my students free access to LavaCon 2023. Many STC members (Lisa Melonçon, Saul Carliner, Mordy Oberstein, Michael Opsteegh, Brian McCaleb, Carrie Chambers, Bianca Ragsdale) have also helped my students with class projects. They joined my class as guest speakers or interviewees. The best news I received this Thanksgiving break is that one of my current students had decided to attend the Texas Tech graduate program in technical communication, and he "think[s] this is going to be a good path for me in life."

I have been fortunate to get assistance, encouragement, and guidance from many technical writers and professors in my professional journey. What a community! With the network and support we've built, both nationally and internationally, I know we are all committed to elevating and sustaining technical communication as a profession. Together we will make a difference! ■



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